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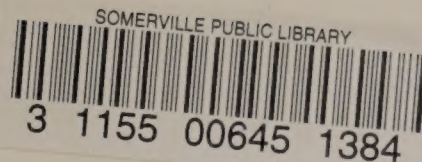








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## Immediate Response Action Status Report No. 4 (RTN 3-23246)

50 Tufts Street, Somerville, MA

Submitted to:  
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November 9, 2007  
Project No. 04516-2

Illeen S. Gladstone, P.E., LSP  
Vice President





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## Defined Terms

µg/m <sup>3</sup> .....	11	MHz .....	38
Accutest.....	10	NEDT.....	31
AUL .....	5	Norfolk.....	22
bgs .....	29	ORP.....	33
BWSC105 .....	7	PCE .....	1, 10
Capuano Center.....	1, 6	PID .....	12
CEP .....	4, 15	ppbv.....	11
cfm .....	12	ppm .....	12
cm/s.....	37	Property.....	1, 6
CSA.....	33	QAPP .....	10
CVOCs.....	1, 8	RAO .....	40
cy.....	31	RAO-P.....	5
DEP .....	1, 6	RMRs .....	5, 9
DO.....	33	RPD.....	11
EH&E.....	2, 8	RTN.....	1, 6
EPA .....	10	sf.....	1, 6
EPERM.....	1, 7	Site .....	6
feet/day.....	37	SSDS .....	1, 7
GAC .....	26	Storch .....	22
GCC .....	38	SVE.....	7
GEI.....	1, 6	TCE .....	10
GPR.....	38	TMC.....	31
Hager.....	38	TOC.....	33
HVAC .....	13	UniFirst .....	1
IDW.....	38	URF.....	3, 4
IRA.....	1, 6	UVs .....	2, 8
lbs/yr .....	12	VOC .....	9
lf.....	14	VOCs.....	2
MCP .....	40		







## Executive Summary

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On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, GEI Consultants, Inc. (GEI) prepared this Immediate Response Action (IRA) Status Report for the Site located at 50 Tufts Street in Somerville, Massachusetts (Fig. 1). This IRA Status Report documents activities associated with the 50 Tufts Street Site from April 1 through September 30, 2007.

Based on the results of assessments conducted to date, the Site includes the 50 Tufts Street property (the Property), together with portions of properties in the neighborhood to the east and west of the Property, and the Michael E. Capuano Early Childhood Center (Capuano Center; Fig. 2). The Property is approximately 51,111 square feet (sf) and developed with an approximately 20,594-sf, one-story, masonry block building. The majority of the building is warehouse space, and a small portion is office space.

Chlorinated volatile organic compounds (CVOCs), particularly tetrachloroethylene (also called perchloroethylene [PCE]), have been measured in soil, groundwater, soil vapor, and indoor air at the Site.

For tracking and reporting purposes, all Massachusetts Department of Environmental Protection (DEP) Release Tracking Numbers (RTNs) for this Site have been consolidated under one number, RTN 3-23246. The Site is currently classified Tier IC.

Response actions performed as part of the IRA from April 1 through September 30, 2007, include:

- Monitoring indoor air quality; sealing a potential vapor intrusion pathway between the foundation wall and slab; and conducting diagnostic testing for the design of a permanent sub-slab depressurization system (SSDS) at the Capuano Center to reduce the potential migration of sub-slab vapor to indoor air.
- Evaluating indoor air quality and the potential for the migration of sub-slab vapor into the indoor air of residences and commercial buildings in the vicinity of 50 Tufts Street.
- Conducting Exposure Pathway Elimination Measures (EPEM) by installing SSDSs at six residences and commercial properties.
- Completing installation of an SSDS and installing a soil vapor extraction (SVE) system at the Property and continuing to evaluate indoor air quality in the building on the Property.
- Continuing subsurface investigations in the vicinity of the Site including installing monitoring wells; sampling soil, groundwater and soil gas; measuring groundwater







levels; conducting hydraulic conductivity testing; and performing a geophysical bedrock survey.

## **Capuano Center**

GEI and Environmental Health and Engineering (EH&E) began conducting response actions at the Capuano Center as a result of indoor air testing for volatile organic compounds (VOCs) conducted in December 2006. Response actions conducted between December 2006 and March 31, 2007, include:

- Reducing the potential migration of sub-slab vapor to indoor air by sealing unintended air transfer pathways into the unit ventilators (UVs) in selected classrooms.
- Installing an SSDS in the south wing of the Capuano Center to control the migration of CVOC vapors from beneath the floor slab into indoor air. The SSDS was activated on February 1, 2007, and has been operating continuously since that time.
- Monitoring the effectiveness of the mitigation measures.

From April 1 through September 30, 2007, GEI continued to monitor the effectiveness of the mitigation measures at the Capuano Center by performing weekly mechanical inspections of the SSDS and monthly operation monitoring including indoor and outdoor air sampling. GEI also conducted additional response actions including:

- Diagnostic testing of the SSDS to aid in the design evaluation of the permanent SSDS.
- Sealing a potential vapor intrusion pathway between the foundation wall and slab along the exterior wall of six classrooms (122, 126, 134, 138, 142, and 146).

## **Residential and Commercial Buildings**

Based on groundwater, soil, and indoor air sampling results, GEI identified a several-block area near the Property for evaluation of soil vapor intrusion as a potential exposure pathway. The evaluation included a program of sub-slab soil vapor testing and indoor air testing to identify affected residential and commercial properties. Based on the testing results, GEI will conduct an EPEM to mitigate the vapor intrusion exposure pathway in residences and commercial buildings.

GEI identified 70 residential and commercial properties to be evaluated. We conducted sub-slab vapor testing and/or indoor air testing at 62 of these properties. We could not obtain contact information for four properties and there were four property owners who refused testing.

Based on the results of sub-slab soil vapor testing and/or indoor air testing, GEI initially recommended conducting EPEMs at 27 residences and buildings. We will continue to monitor 31 buildings where an EPEM has not been recommended. Whether or not and to what extent EPEMs are to be installed is dependent, in part, on DEP's pending re-assessment of its







previously published Unit Risk Factor (URF) for PCE, as well as the technical feasibility of such measures based on sub-slab soil and other site-specific conditions.

Of the 27 properties initially targeted, an SSDS has been installed as an EPEM at six locations. Based on data collected after installation of several systems, together with an evaluation of soil and building conditions on these and other properties, GEI concluded that an SSDS may not be the appropriate EPEM at many of the locations. Therefore, GEI designed an alternative vapor barrier and venting system, tailored to the individual characteristics of each building. This alternative system has been discussed with DEP and the City of Somerville Building Department. GEI has been coordinating with the Building Department to identify and obtain the permits required to implement the EPEM.

## **50 Tufts Street**

GEI completed the installation of an SSDS and the associated off-gas treatment at the Property as part of mitigation measures sufficient to achieve a condition of no Imminent Hazard for a hypothetical commercial worker employed full time (40 hours per week) at the Property. The SSDS began operating on April 30, 2007.

Monitoring data collected for the SSDS show vacuum influence at all sub-slab monitoring points inside the building, which indicates that the system is capturing soil vapor beneath the slab, preventing its migration to indoor air.

Based on multiple rounds of groundwater measurements, the general direction of groundwater flow at the Site is to the northeast across Tufts Street towards Knowlton and Franklin Streets. Based on the results of soil, soil vapor and indoor air samples collected at 50 and 60 Tufts Street and the surrounding area, limited radial soil vapor migration appears to be occurring. PCE was measured in indoor air in one of the units at 60 Tufts Street which is located north, and cross gradient, of the 50 Tufts Street property.

To reduce the mass of contaminants in soil vapor at the 50 Tufts Street property and control its migration, GEI installed an SVE system in July and August 2007.

The SVE system has been operating since August 22, 2007, along with the SSDS. We have been monitoring the performance of both systems, and conducting indoor and outdoor air sampling on the Property.

## **Subsurface Investigations**

To continue the evaluation of the extent of subsurface contamination, GEI observed the installation of eight new monitoring wells in June through September 2007. Of these eight new monitoring wells, four were installed in shallow overburden, three were installed in till, and three were installed in bedrock. Shallow overburden monitoring wells were constructed to allow for







both soil vapor and groundwater sampling. Selected soil and rock samples were collected from the borings and submitted for laboratory analysis for physical properties. Selected soil samples were also submitted for laboratory analysis of VOCs.

Quarterly groundwater sampling events were conducted in April and July 2007. Groundwater samples were also collected from the newly installed wells. Groundwater samples were submitted for laboratory analysis for CVOCs.

GEI collected soil vapor samples from four of the newly installed monitoring wells in July and August 2007. GEI also collected quarterly soil vapor samples from selected wells in April and July 2007. Soil vapor samples were submitted for laboratory analysis for CVOCs.

Additional subsurface activities conducted between April 1 and September 30, 2007 include:

- Abandonment of monitoring well SH-MW2.
- Monthly groundwater level measurements.
- Hydraulic conductivity testing of selected monitoring wells.
- A geophysical bedrock survey of the Site.

## **Planned Activities**

At the Capuano Center, GEI will continue to monitor the operation of the SSDS and indoor air quality. We will complete the evaluation of permanent design upgrades to the SSDS by February 2008, and plan to implement the upgrades by early 2008. The focus of the system upgrade will be establishing a permanent housing and location for the mechanical system.

Following the December sampling event, indoor air sampling will be conducted quarterly for one year. Whether or not and to what extent additional indoor air monitoring may be required will be evaluated and any further monitoring plans will be submitted to DEP for review and comment.

At the residences and commercial properties, GEI will continue to collect indoor air samples quarterly to complete one year of testing at the buildings in the study area where prior sub-slab soil vapor sampling and/or indoor air testing results have indicated that the indoor air quality does not pose significant risk and does not represent a Critical Exposure Pathway (CEP). We will continue to conduct EPEMs at residences and buildings and monitor those systems.

GEI may re-evaluate the need to conduct an EPEM, or an additional EPEM, at individual buildings based on DEP's re-assessment of the unit risk factor (URF) for PCE. In particular, this evaluation may affect residences where indoor air testing demonstrates a condition of No Significant Risk, but a CEP has not been eliminated.





In order to achieve a Permanent Solution at a residence or commercial building, GEI intends to issue a partial Response Action Outcome (RAO-P) for each property or properties.

Subject to property owners' approval, we would:

- Prepare and submit an RAO-P for each property, or groups of properties, defined as the environmental media within the boundaries of each property exclusive of groundwater.
- Address properties that require EPEMs in the same manner, regardless of what form of venting systems and vapor barriers are installed, with a Class A-3 RAO-P supported by an Activity and Use Limitation (AUL) that provides for inspections and maintenance.
- Address properties located within the boundaries of the Site, but that do not require an EPEM, by issuing a Class B-1 RAO-P.
- Continue to address all remaining requirements under the Massachusetts Contingency Plan (MCP) to conduct remedial actions, monitoring and reporting (including Remedial Monitoring Reports [RMRs]) under the existing RTN for the Site as a whole.

At the 50 Tufts Street property, GEI conducted indoor air sampling in October 2007 and will continue to sample quarterly until August 2008. We will continue to monitor monthly the effectiveness of the SSDS and SVE systems at the Property.

GEI will continue to collect groundwater and soil vapor samples at selected wells. If additional subsurface investigations are warranted, GEI will submit a Phase II scope of work addendum.





# 1. Introduction

---

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, GEI Consultants, Inc. (GEI) prepared this Immediate Response Action (IRA) Status Report No. 4. The work was conducted as part of IRA activities for the Site located at 50 Tufts Street in Somerville, Massachusetts (the Site; Fig. 1-1). Based on the results of assessments conducted to date, the Site includes the 50 Tufts Street property (the Property), together with portions of properties in the neighborhoods east and immediately west of the Property, and the Michael E. Capuano Early Childhood Center (Capuano Center) located at 150 Glen Street in Somerville, Massachusetts (Figs. 1-1 and 1-2). The Property is approximately 51,111 square feet (sf) and developed with an approximately 20,594-sf, one-story, masonry block building. The majority of the building is warehouse space, and a small portion is office space.

## 1.1 Background

For tracking and reporting purposes, all Massachusetts Department of Environmental Protection (DEP) Release Tracking Numbers (RTNs) for this Site have been consolidated under one number, RTN 3-23246. The Site is currently classified Tier IC.

Previous submittals by UniFirst that document IRA activities at the Site since January 2006 are summarized in Table 1-1. A detailed Site description and a summary of the history of releases and response actions conducted at the Site are documented in the previously submitted reports.

## 1.2 Contact Information

Person Undertaking the IRA	Licensed Site Professional
John R. Badey	Ileen S. Gladstone, P.E., LSP
Vice President of Distribution and Engineering	Vice President
UniFirst Corporation	GEI Consultants, Inc.
68 Jonspin Road	400 Unicorn Park Drive
Wilmington, MA 01887	Woburn, MA 01801
978.658.8888	781.721.4012
	LSP License No.9719

## 1.3 Purpose

The purpose of this submittal is to provide a description and the results of IRA activities conducted between April 1 and September 30, 2007, including:





- Monitoring indoor air quality; sealing a potential vapor intrusion pathway between the foundation wall and slab; and conducting diagnostic testing for the design of a permanent sub-slab depressurization system (SSDS) at the Capuano Center to reduce the potential migration of sub-slab vapor to indoor air.
- Evaluating indoor air quality and the potential for the migration of sub-slab vapor into the indoor air of residences and commercial buildings in the vicinity of 50 Tufts Street.
- Conducting Exposure Pathway Elimination Measures (EPEM) by installing SSDSs at six residences and commercial properties.
- Completing installation of an SSDS and installing a soil vapor extraction (SVE) system at the Property and continuing to evaluate indoor air quality in the building on the Property.
- Continuing subsurface investigations in the vicinity of the Site including installing monitoring wells; sampling soil, groundwater and soil gas; measuring groundwater levels; conducting hydraulic conductivity testing; and performing a geophysical bedrock survey.

## **1.4 Submittals**

An IRA Transmittal Form (BWSC105) for both RTNs (3-23246 and 3-26114) associated with the Site was submitted through eDEP (Transaction No. 155462) on November 9, 2007, and copies are in Appendix A.

## **1.5 Public Involvement**

To inform City of Somerville officials and residents about activities associated with the Site, UniFirst, the City, and GEI held two community meetings during the past six months, on May 21 and September 17, 2007. Agendas, attendance lists and the presentation for public meetings are included in Appendix B. GEI maintains local public repositories of key documents at the Somerville Central Public Library and at the City of Somerville Clerk's Office. GEI also provided electronic versions of the repository documents to the City for posting to its web site.

Individual property owners have been provided copies of the laboratory testing results of samples collected on their properties along with the BWSC123 Form. Copies of the letters were provided to DEP at the time they were mailed to the owners.





## **2. Capuano Center IRA Activities**

---

### **2.1 Introduction**

GEI evaluated indoor air at the Capuano Center in December 2006 by collecting indoor air samples for laboratory testing for chlorinated volatile organic compounds (CVOCs). Based on the results of the indoor air testing, GEI and Environmental Health and Engineering (EH&E) of Newton, Massachusetts, conducted response actions at the Capuano Center.

These response actions include:

- Reducing the potential migration of sub-slab vapor to indoor air by sealing unintended air transfer pathways into the unit ventilators (UVs) in selected classrooms.
- The installation of an SSDS in the south wing of the Capuano Center to control the migration of CVOC vapors from beneath the floor slab into indoor air. The SSDS was activated on February 1, 2007, and has been operating continuously since that time.
- Monitoring the effectiveness of the mitigation measures.

Detailed descriptions of the sampling efforts, and results from December 2006 through March 2007, and a description of the design and installation of the SSDS were documented in IRA Status Report No. 3 (DEP RTN 3-23246) and IRA Status Report No. 1 (DEP RTN 3-26114), submitted to DEP on May 15, 2007.

IRA activities conducted at the Capuano Center from April 1 through September 30, 2007, include:

- Weekly operations monitoring.
- Monthly operations monitoring including indoor and outdoor air sampling.
- Diagnostic testing of the SSDS.
- Sealing a potential vapor intrusion pathway between the foundation wall and slab along the exterior wall of six classrooms (122, 126, 134, 138, 142, and 146).

### **2.2 Weekly SSDS Operations Monitoring**

From April 1 through September 30, 2007, GEI conducted weekly mechanical inspections of the system. Weekly mechanical inspections include:

- Ensuring the blower enclosure was secure.





- Checking for condensate accumulation and removing it from the blower, if necessary.
- Collecting pressure measurements in the system manifold pipes, combined influent pipe, and effluent pipe using a manometer calibrated to 0.001 inches of water.
- Collecting volatile organic compound (VOC) measurements with a ppb-RAE from the system manifold pipes, the combined influent pipe, and the effluent pipe.
- Deriving system flow rates from pressure differentials measured in the combined influent pipe using a Pitot tube and manometer or thermo anometer.

Weekly inspections were conducted on:

- |                                       |                                      |
|---------------------------------------|--------------------------------------|
| ▪ March 1, 8, 14, 22, and 29, 2007    | ▪ July 6, 13, 21, and 30, 2007       |
| ▪ April 6, 20, and 27, 2007           | ▪ August 6, 10, 20, 30, and 31, 2007 |
| ▪ May 4, 11, 15, 17, 22, and 25, 2007 | ▪ September 7, 19, 21, and 28, 2007  |
| ▪ June 1, 8, 15, and 22, 2007         |                                      |

Pre-Sampling Checklists, Field Monitoring Forms, and Weekly Mechanical Inspection Logs were previously submitted in monthly Remedial Monitoring Reports (RMRs).

## 2.3 Monthly Monitoring

GEI conducted monthly monitoring of the SSDS in March, April, May, and September 2007. Monthly monitoring was not conducted in June 2007, and was delayed in August 2007 due to curricular activities and access constraints at the Capuano Center. Monthly monitoring consists of:

- Measuring VOC concentrations using a ppb-RAE at each sub-slab soil vapor monitoring point, extraction point, and at the combined influent and effluent pipes in the temporary blower enclosure.
- Measuring pressure using a manometer at each sub-slab soil vapor monitoring point, extraction point, and at the combined influent and effluent pipes in the temporary blower enclosure.
- Collecting indoor air samples from Classrooms 126, 138, 141, 142, and 146 in a Summa canister and submitting the samples for laboratory analysis.
- Collecting an outdoor air sample on the Capuano Center roof, downwind of the SSDS exhaust pipe.

A summary table of total VOCs measured in interior sub-slab monitoring points and blower enclosure monitoring points; graphs showing total VOC concentrations in interior sub-slab





monitoring points, exterior extraction points, exterior enclosure monitoring points, and blower enclosure monitoring points versus time were previously submitted in monthly RMRs.

### **2.3.1 Monthly Indoor and Outdoor Air Sampling and Laboratory Testing**

GEI collected monthly indoor and outdoor air samples at the Capuano Center from April to September 2007 as part of SSDS operation monitoring. Sampling was not conducted in June 2007, and was delayed in August 2007 due to curricular activities and access constraints at the Capuano Center.

Indoor and outdoor air samples were typically collected in 6-liter Summa canisters over a 4-hour period. GEI submitted the Summa canisters to Accutest Laboratories (Accutest) of Marlborough, Massachusetts, for laboratory analysis for VOCs by the U.S. Environmental Protection Agency (EPA) Method TO-15 with a modified analytes list:

- |                              |                             |
|------------------------------|-----------------------------|
| ▪ Chloroethane               | ▪ 1,1,1-Trichloroethane     |
| ▪ Carbon Tetrachloride       | ▪ 1,1,2,2-Tetrachloroethane |
| ▪ 1,1-Dichloroethane         | ▪ 1,1,2-Trichloroethane     |
| ▪ 1,1-Dichloroethylene       | ▪ Tetrachloroethylene (PCE) |
| ▪ 1,2-Dichloroethane         | ▪ Trichloroethylene (TCE)   |
| ▪ trans-1,2-Dichloroethylene | ▪ Vinyl Chloride            |
| ▪ cis-1,2-Dichloroethylene   |                             |

The locations of indoor and outdoor air samples were the same during each monthly sampling event and are shown in Figure 2-1. Indoor air samples were collected in Classrooms 126, 138, 141, 142, and 146. Outdoor air samples were collected on the roof downwind of the SSDS exhaust pipe. Results of indoor and outdoor air sampling are summarized in Tables 2-1 and 2-2, respectively. The laboratory data reports are in Appendix C.

### **2.3.2 Air Sampling Quality Control**

The air sampling was conducted in general conformance with the project Work Plan and Quality Assurance Project Plan (QAPP) dated April 6, 2006, submitted to DEP for indoor air sampling at residences near the 50 Tufts Street property. Any deviations from the QAPP during indoor and outdoor air sampling are listed in Table 2-3.





### **2.3.2.1 Air Sampling: Checklist and Methods**

Air samples were collected using polished, stainless-steel, evacuated canisters (Summa canisters) and regulators provided by Accutest. Each canister was certified clean by Accutest, and copies of the certifications are in Appendix C.

Sampling equipment was placed in the sampling location after completing an Indoor Air Sampling Checklist. Copies of the completed checklists are in Appendix D.

The regulator was attached to the canister at the location of the testing, and the pressure gauge reading was recorded. The canister was elevated so that the “candy cane” air inlet was approximately 3 to 5 feet above the floor. The canister position in each classroom was photographed. Copies of photographs are in Appendix D. The laboratory set flow regulator was subsequently turned on and the time recorded. The regulator was turned off after approximately 4 hours, and the time and final pressure gauge reading was recorded.

### **2.3.2.2 Air Sampling: Duplicates**

A duplicate air sample was collected in Room 138 during each monthly indoor air sampling event at the Capuano Center. Each set of duplicate air samples was created by using a “T-splitter” and tubing attached to two canisters so that both canisters were drawing air from the same sample port.

The duplicate air samples (i.e., both canisters from each event) were submitted “blind” to Accutest for testing. The purpose of these duplicates is to evaluate the ability of the laboratory to accurately replicate testing results. The calculated relative percentage difference (RPD) between the duplicate samples for each sampling event between April and August 2007 was within the acceptable limit of 25 percent specified in the project QAPP.

The RPD for the duplicate samples collected in Classroom 138 on September 10, 2007, was not within the acceptable limit of 25 percent specified in the project QAPP. The sample and duplicate were collected using a “T-splitter” and tubing attached to two sample canisters so that both canisters were drawing air from the same sample port. The laboratory did not detect PCE above laboratory reporting limits in one sample; however, it detected 0.96 parts per billion by volume (ppbv) (6.5 micrograms per cubic meter [ $\mu\text{g}/\text{m}^3$ ]) of PCE in the duplicate sample. PCE was not reported above laboratory reporting limits in Classroom 138, or any of the other classrooms, in any other monthly sampling event conducted between February and September 30, 2007. After extensive discussion and evaluation, GEI and the laboratory agree that the detection of PCE only in the duplicate sample is an anomaly. GEI conducted indoor air sampling on October 8, 2007, and will continue to monitor indoor air in Classroom 138 and neighboring classrooms.





### **2.3.3 Meteorological Conditions**

During the air sampling events at the Capuano Center, outdoor meteorological measurements were taken with a portable barometer and thermometer. These measurements were recorded on the Indoor Air Sampling Checklists (Appendix D) and are summarized in Table 2-4.

### **2.3.4 Indoor Air Testing**

The air samples were submitted to Accutest for laboratory analysis by EPA Method TO-15. The EPA Method TO-15 was modified to report the following analytes potentially associated with the Site (see Section 2.3.1).

The monthly monitoring from April through September 2007 showed pressure readings consistent with measurements taken in February and March 2007. VOC concentrations decreased overall in exterior extraction points from March and April 2007. Subsequent monthly VOC concentrations, at exterior extraction points through September 2007, were consistent with April 2007 VOC concentrations.

From April through September 2007, VOC concentrations decreased overall at sub-slab monitoring points. However, April 2007 VOC concentrations increased from the VOC concentrations measured in March 2007. The air pump used to collect the air samples for testing in April 2007 was used at another location at the Site earlier in the day. Cross contamination from this location may be responsible for the elevated VOC concentrations measured.

The average monthly flow rates from April through September 2007, ranging from 106 to 111 cubic feet per minute (cfm), were slightly higher than the average monthly flow rate measured in March 2007 of 103 cfm.

## **2.4 Off-Gas VOC Monitoring**

The regulatory requirements for off-gas treatment for remedial air emissions are in DEP's Policy No. WSC-94-150, "Off-Gas Treatment of Point-Source Remedial Air Emissions." Off-gas contaminant treatment is not required for SSDSs that produce a total air emission rate of volatile contaminants of less than 100 pounds per year (lbs/yr). Before installing the SSDS, we estimated that the system would produce significantly less than 100 lbs/yr of VOCs, and therefore, we did not install off-gas treatment processes. A description of the SSDS discharge estimate and confirmatory sampling is presented in IRA Status Report No. 3.

GEI has continued to monitor the SSDS on approximately a weekly basis using a photoionization detector (PID) as a screening tool to track relative changes in system effluent. PID monitoring results for this monitoring period were previously submitted in monthly RMRs. Since the PID is calibrated to a 1-point, 10 parts per million (ppm) gas standard, PID results around 1 ppm or below were considered estimated. Furthermore, PID data for the SSDS were considered





approximate due to the sensitivity of the detector to humidity and temperature. The PID results, and the maximum system flow rate of 113 cfm measured during the recent monitoring period, indicate the estimated annual discharge rate for the SSDS – prorated from the recent monitoring period data – is significantly less than 100 lbs/yr.

GEI will continue to monitor the SSDS discharge with a PID periodically to evaluate trends in sub-slab VOC concentrations and to confirm that off-gas treatment is not required.

## **2.5 Mitigation**

As part of an evaluation for the final design parameters and modifications for a permanent SSDS at the Capuano Center, between April 1 and September 30, 2007, GEI:

- Performed a diagnostic test to evaluate potential design modifications for upgrading the temporary SSDS to a permanent system.
- Sealed the slab wall foundation joint along the exterior wall of Classrooms 122, 126, 134, 138, 142, and 146.
- Monitored the operation of the temporary SSDS.

### **2.5.1 Diagnostic Testing**

On July 21, 2007, GEI performed a diagnostic test of the existing SSDS at the Capuano Center, as part of a preliminary evaluation for the final design parameters and modifications for a permanent SSDS at the Capuano Center. The diagnostic test generally consisted of adjusting the SSDS system extraction rates and building heating, ventilation, and air conditioning (HVAC) conditions and evaluating the affects of these adjustments on the operation of the SSDS. Details of the test were provided in IRA Modification No. 7, which was submitted to the DEP on October 15, 2007.

EH&E monitored the HVAC system and pressure conditions throughout the test. The locations of the monitoring points are shown in the piping diagram in Figure 2-2. A cross section of a typical extraction pipe header is in Figure 2-3. Results of the test are in Table 2-5.

The results of the diagnostic test suggested that the influence area of the SSDS was affected by the floor slab wall foundation joint that runs along the southern wall of Classrooms 122, 126, 134, 138, 142, and 146. The floor slab wall foundation joint is an approximately ½-inch-wide space between the concrete floor slab and the foundation wall that may have been filled with “slab-edge filler” during construction. However, based on the SSDS diagnostic test, the joint was not completely sealed. A cross section of the construction joint is shown in Figure 2-4.





### **2.5.2 Slab-Wall Foundation Joint Sealing**

As a result of the diagnostic test, GEI arranged to seal the joints as an additional exposure pathway elimination measure at the Capuano Center. GEI received verbal approval from DEP on August 16, 2007. The sealing entailed:

- Cleaning, drying, and removing old sealant and surface contaminants (e.g., oil, grease, and foreign matter) from the floor slab/foundation wall joint and surrounding substrate.
- Applying a water-based flexible sealant, to seal the floor slab/foundation wall joint and any additional interior cracks that were greater than 0.125 inch wide. GEI estimates that the total length of these joints and cracks was approximately 80 linear feet (lf).

Details of the slab wall foundation joint sealing were documented in IRA Plan Modification No. 7.

### **2.5.3 Post-Joint Sealing SSDS Diagnostic Test**

GEI conducted a second diagnostic test on August 30, 2007, to evaluate the effectiveness of the floor slab/foundation wall joint sealing and assess final design parameters and modifications for a permanent SSDS. The results of the test indicated that the joint sealing increased the influence of the SSDS and decreased the influence of the HVAC system on sub-slab pressure conditions. Results of the diagnostic tests performed after joint sealing are in Table 2-6.

### **2.5.4 Permanent SSDS Design Evaluation**

GEI is currently developing specifications for the permanent system to be installed at the Capuano Center. The design will likely include a centralized blower (similar to the current temporary blower) installed on a rooftop in a permanent structure on the south side of the Capuano Center. GEI will also consider the addition of potential sensing and control systems to the HVAC system that could be monitored by Capuano Center personnel. Design and installation details of the permanent SSDS will be presented in a subsequent submittal.

## **2.6 Remediation Waste Management**

No remediation waste was generated during IRA activities at the Capuano Center from April 1 through September 30, 2007.





### 3. Residential and Commercial Properties IRA Activities

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#### 3.1 Introduction

Based on groundwater, soil, and indoor air sampling results, GEI identified a several-block area near the Property for evaluation of soil vapor intrusion as a potential exposure pathway. The residential and commercial properties that were evaluated are listed in Table 3-1 and shown in Figure 3-1.

#### 3.2 Evaluation Process

GEI established the following process presented in IRA Plan Modification No. 1 (RTN 3-26114) dated April 2, 2007, to evaluate the residential and commercial buildings and address the exposure pathway:

- Establish criteria for recommending an EPEM or additional evaluation.
- Contact property owner.
- Inspect the building and collect sub-slab soil vapor samples.
- Based on the soil vapor sample results, recommend an EPEM or additional evaluation.
- Conduct additional evaluation by collecting indoor air samples.
- Conduct EPEM.

PCE was detected in indoor air in seven homes along Tufts Street during at least one of the indoor air sampling events conducted by the DEP and GEI in 2005 and 2006. The presence of PCE above laboratory reporting limits in the living space of an occupied residential dwelling constitutes a Critical Exposure Pathway (CEP) and, depending on which URF one were to use for PCE, may or may not be considered a condition of No Significant Risk. DEP currently is re-assessing the URF for PCE. Sub-slab soil vapor samples were not collected at these homes.

As discussed in the IRA Status Report No. 3, the residences along Dell Street were eliminated from further evaluation. CVOCs were not detected above the laboratory reporting limits in the indoor air samples collected in six residences on Dell Street. Based on the indoor air testing results, along with groundwater and soil vapor test results from sampling points located along and upgradient of Dell Street, it is GEI's opinion that the indoor air quality in homes along Dell Street is not affected by the Site.





The evaluation process is shown in Figure 3-2.

### **3.2.1 Contact Property Owner**

GEI identified approximately 70 residential and commercial properties (excluding the 50 Tufts Street building, the Capuano Center, and Dell Street) for evaluation. GEI collected sub-slab soil vapor samples at 56 of these properties. Sub-slab soil vapor samples were not collected at six properties, since indoor air sampling was already conducted there. Eight others were not tested because GEI could not contact them or was denied access by the property owners.

### **3.2.2 Criteria for Mitigative Measures in Residences**

Based on the concentrations of CVOCs detected in the sub-slab soil vapor, we established preliminary assessment criteria in residences for: (1) mitigation to eliminate the potential exposure pathway by installing an EPDM; (2) indoor air testing to confirm the absence or presence of an exposure pathway and whether or not mitigation is warranted; or (3) no additional action. The criteria for the recommendation were:

- Installing an SSDS: Total CVOCs greater than 561  $\mu\text{g}/\text{m}^3$
- Indoor air testing: Total CVOCs between 10 and 561  $\mu\text{g}/\text{m}^3$
- No additional action: Total CVOCs less than 10  $\mu\text{g}/\text{m}^3$

AMEC Earth and Environmental derived the sub-slab soil gas concentration action level to conduct mitigation (561  $\mu\text{g}/\text{m}^3$ ) based on the methodology embedded in the Johnson-Ettinger model to derive an acceptable indoor air concentration of PCE to achieve a level of No Significant Risk based on the URF that DEP had previously published. The sub-slab soil gas action level requiring no additional action (10  $\mu\text{g}/\text{m}^3$ ) was provided by DEP. These are very conservative screening values that were used solely for purposes of this preliminary evaluation. Derivation of the criteria was presented in the IRA Modification Plan Modification No. 1.

### **3.2.3 Criteria for Mitigation in Commercial Buildings**

Based on the concentrations of CVOCs detected in the sub-slab soil gas, we established preliminary assessment criteria at commercial properties for: (1) mitigation to eliminate the potential exposure pathway by installing an EPDM; (2) indoor air testing to confirm the presence of an exposure pathway and whether or not mitigation is warranted; or (3) no additional action. The criteria for the recommendation were:

- Installing an SSDS: Total CVOCs greater than 2,992  $\mu\text{g}/\text{m}^3$
- Indoor air testing: Total CVOCs between 32 and 2,992  $\mu\text{g}/\text{m}^3$
- No additional action: Total CVOCs less than 32  $\mu\text{g}/\text{m}^3$





AMEC derived the commercial sub-slab soil gas concentration action level to install an SSDS ( $2,992 \mu\text{g}/\text{m}^3$ ) based on the methodology embedded in the Johnson-Ettinger model to derive an acceptable indoor air concentration of PCE to achieve a level of No Significant Risk, based on the URF that DEP had previously published. The commercial sub-slab soil gas action level requiring no additional action ( $32 \mu\text{g}/\text{m}^3$ ) was calculated based on a No Significant Risk level and a very conservative indoor air attenuation factor selected by DEP. These are very conservative screening values that were used solely for purposes of this preliminary evaluation. Derivation of the criteria was presented in the IRA Plan Modification No. 1.

### **3.2.4 Criteria to Conduct Indoor Air Testing in Residences**

The IRA Plan Modification No. 1 stated that indoor air testing would be limited to residences where the concentration of PCE in the sub-slab soil gas is greater than  $10 \mu\text{g}/\text{m}^3$  and less than  $561 \mu\text{g}/\text{m}^3$ . However, as a further conservative measure, indoor air testing was conducted at many residences where the sub-slab vapor sampling results were less than  $10 \mu\text{g}/\text{m}^3$  if they were located in areas having elevated concentrations of PCE in groundwater.

An SSDS was initially recommended for any residence where PCE or other VOCs were detected above the laboratory reporting limit in “occupied living space,” subject to property owner approval and technical feasibility of installation of an SSDS based on sub-slab soil and other site-specific conditions.

### **3.2.5 Exposure Pathway Elimination Measures**

To mitigate the vapor intrusion exposure pathway in residences and commercial buildings, IRA Plan Modification No. 1 proposed installing an SSDS as an EPEM. The SSDS is a venting system similar to those commonly used to address radon in homes, and would be installed by a licensed radon contractor. A typical design would include coring one or two holes (of approximately 4-inch-diameter) through the building slab and attaching PVC piping to each. The pipes would be run overhead or along the wall, and joined to one common pipe before exiting through the wall to the exterior of the house. An inline fan would be installed in the exterior pipe, and the pipe would be extended up the outside wall to above the eaves of the house.

Based on data collected after installation of those systems, together with an evaluation of soil and building conditions on these and other properties, GEI concluded that an SSDS may not be the appropriate EPEM at many of the locations. The geologic conditions beneath the building slab, the absence of a competent basement slab and/or the presence of fieldstone foundations may impede effective operation of an SSDS; therefore, GEI designed an alternative vapor barrier and venting system, tailored to the individual characteristics of each building. This alternative system has been discussed with DEP and the City of Somerville Building Department. GEI has





been coordinating with the Building Department to identify and obtain the permits required to implement the EPDM.

An EPDM, in the form of an SSDS, is applicable to buildings with a competent concrete slab floor, concrete walls and good sub-slab air flow. An alternative EPDM, consisting of a vapor barrier and venting system is applicable to buildings with or without a good quality concrete floor, a fieldstone or brick foundation, and poor sub-slab air flow.

### **3.3 Sub-Slab Soil Vapor Sampling**

GEI collected soil vapor samples at 19 buildings between February 28 and March 29, 2007. Details of the sampling conducted were provided in IRA Status Report No. 3. Validated data for the sub-slab sampling events were not available by March 31, 2007, and the results of the testing are included in this IRA Status Report. Between April 1 and September 30, 2007, GEI inspected and collected sub-slab soil vapor samples from 37 residences and other buildings. In total, GEI collected sub-slab soil vapor samples at 56 buildings. The buildings where sub-slab vapor sampling was conducted, and the recommended actions based on the results, are in Table 3-2. Figure 3-1 shows buildings where GEI conducted sub-slab soil vapor sampling.

Results of sub-slab vapor testing are presented in Tables 3-8a through 3-76a and laboratory data reports are in Appendix E. GEI initially recommended conducting indoor air testing at 34 of the buildings where sub-slab soil vapor testing was conducted, re-sampling at nine buildings and conducting an EPDM at 13 buildings. Whether or not and to what extent EPDMs are to be installed is dependent, in part, on DEP's pending re-assessment of its previously published URF for PCE, as well as the technical feasibility of such measures based on sub-slab soil and other site-specific conditions.

#### **3.3.1 Sub-Slab/Soil Vapor Sampling Methods**

##### **3.3.1.1 Pre-Sampling Survey**

Prior to installing sub-slab monitoring points and collecting soil vapor samples, GEI conducted a pre-sampling survey of each building to identify VOC-containing materials in plain view, and to document basement conditions and construction. GEI also screened ambient basement air for VOCs with a ppbRAE. To accommodate property owners, GEI did not remove any material from basements prior to sampling. Copies of the Pre-Sampling Field Checklist and Observations – Sub-Slab Form are in F.

##### **3.3.1.2 Soil Vapor Monitoring Point Installation**

GEI typically installed up to two sub-slab soil vapor monitoring points in each building we sampled. Sub-slab Monitoring Point Installation Logs are in Appendix G. In buildings with concrete basement floor slabs, sub-slab soil vapor monitoring points were installed by drilling a





1 ¼-inch-diameter hole approximately 2½ inches deep with a hand-held hammer drill. A ⅜-inch-diameter hole was then drilled through the center of the larger-diameter hole to a depth of approximately 12 inches. GEI personnel then installed a sampling port consisting of Teflon tubing and a stainless-steel compression fitting into the hole, and cleared the tubing of any possible obstructions to soil vapor flow. The monitoring point was secured with hydraulic cement and left to cure for approximately 1 hour before connecting the sampling equipment. A photograph of a typical sub-slab soil vapor monitoring point with sampling equipment is in Figure 3-3.

In buildings where the basement floor was dirt or there was not a concrete floor slab, GEI installed soil vapor monitoring points by drilling an approximately 1-inch-diameter hole approximately 3 feet below the basement floor. GEI then inserted a slotted, stainless-steel soil vapor point attached to Teflon tubing into the hole. The annular space around the soil vapor point and tubing was filled with Ottawa sand and sealed with hydrated bentonite powder. The finished soil vapor monitoring point resembled the sub-slab soil vapor monitoring point shown in Figure 3-3. After installation, GEI allowed the soil vapor at the monitoring point to equilibrate for approximately 1 hour.

The location of each sub-slab soil vapor monitoring point was photographed and recorded in a sketch on the Sub-slab Sampling Checklist. Photographs of monitoring points and sampling equipment are in Appendix F.

### **3.3.1.3 Soil Vapor Sampling and Testing**

GEI collected soil vapor samples approximately 1 hour after monitoring point installation. To begin sampling, GEI personnel purged the sample port with an air pump for 5 to 10 minutes. After purging was complete, GEI personnel connected the monitoring point to a polished, 6-liter, stainless-steel evacuated canister (Summa canister) and regulator using Teflon tubing and stainless-steel compression fittings. Summa canisters and regulators were provided by Accutest. The regulator was attached to the canister at the location of the testing, and the pressure gauge reading was recorded on a Sub-slab Sampling Checklist. The laboratory-set flow regulator was then turned on, and the starting pressure and time recorded. The regulator was turned off after approximately 1 hour, and the final pressure and time were recorded. Copies of the Sub-slab Sampling Checklists are in Appendix F.

## **3.4 Indoor Air Sampling**

Between April 8 and September 29, 2007, GEI collected indoor air samples at 34 residences and other buildings. The buildings where indoor air testing was conducted, and the recommended actions based on indoor air testing results, are in Table 3-3. Figure 3-1 shows buildings where GEI conducted indoor air testing.





Results of indoor air testing are presented in Tables 3-8b through 3-76b and laboratory data reports are in Appendix H. Based on the indoor air testing results, GEI recommended conducting an EPEM at 15 buildings. Whether or not and to what extent EPEMs are to be installed is dependent, in part, on DEP's pending re-assessment of its previously published URF for PCE, as well as the technical feasibility of such measures based on sub-slab soil and other site-specific conditions. An SVE system also was installed at 50 Tufts Street, in part, to control the potential migration of soil vapor to 60 Tufts Street.

### **3.4.1 Indoor Air Sampling – Checklists and Methods**

GEI collected indoor air samples from the basement and first floor of residences over a 4-hour period using Summa canisters and regulators provided by Accutest. Each canister was certified clean by Accutest, and copies of the certifications are in Appendix H. An Indoor Air Sampling Checklist was completed onsite before collecting the sample. Copies of the completed checklists are in Appendix I.

Flow regulators were attached to the Summa canisters at the location of the testing. Canisters were placed so that the air inlet was approximately 3 to 5 feet above the floor. The laboratory-set flow regulator was then turned on, and the starting pressure and time recorded. The regulator was turned off after approximately 4 hours, and the final pressure and time were recorded. Photographs of canister position in each room, taken prior to sampling, are in Appendix I.

## **3.5 Indoor Air and Sub-Slab Soil Vapor Testing**

The soil vapor and indoor air samples were submitted to Accutest for laboratory analysis by EPA Method TO-15. EPA method TO-15 was modified to report the following compounds of concern:

- |                              |                             |
|------------------------------|-----------------------------|
| ▪ Chloroethane               | ▪ 1,1,1-Trichloroethane     |
| ▪ Carbon Tetrachloride       | ▪ 1,1,2,2-Tetrachloroethane |
| ▪ 1,1-Dichloroethane         | ▪ 1,1,2-Trichloroethane     |
| ▪ 1,1-Dichloroethylene       | ▪ Tetrachloroethylene (PCE) |
| ▪ 1,2-Dichloroethane         | ▪ Trichloroethylene (TCE)   |
| ▪ trans-1,2-Dichloroethylene | ▪ Vinyl Chloride            |
| ▪ cis-1,2-Dichloroethylene   |                             |

## **3.6 Meteorological Conditions**

GEI measured outdoor meteorological conditions during each of the soil vapor and indoor air sampling events. GEI also measured indoor temperature and barometric pressure during indoor





air sampling. Measurements were taken with a portable barometer and thermometer, and were recorded on the Soil Vapor Sampling Checklists and Indoor Air Sampling Checklists (Appendices E and H, respectively). Meteorological conditions are summarized in Tables 3-4a and b.

### **3.7 Mitigation Measures**

Based on the sub-slab soil vapor and indoor air testing results, GEI initially recommended conducting EPEMs at 28 buildings, 13 based on the soil vapor results and 15 based on the indoor air results. An SVE system also was installed, in part, to control potential migration of soil vapor from 50 to 60 Tufts Street. These recommendations are noted in Table 3-1. Prior to installing a venting system; GEI installed air purifiers in residences and buildings as a temporary mitigation measure. To date the venting system has been an SSDS. Table 3-5 lists the buildings where an air purifier has been installed, Table 3-6 lists the buildings where an SSDS has been installed.

#### **3.7.1 Temporary Measure - Air Purifiers**

GEI has installed 23 indoor air purifiers at residences and buildings. A description of the air purifiers and specification sheets were included in IRA Plan Modification No. 1. Table 3-5 lists the buildings where an air purifier has been installed.

GEI removed the air purifiers following the installation of an SSDS. An air purifier was re-installed at 95 Franklin Street when indoor air testing indicated that concentrations of PCE were measured above laboratory reporting limits. On a quarterly basis, we conduct routine maintenance on the air purifiers.

#### **3.7.2 Permanent Exposure Pathway Elimination Measures**

To mitigate the vapor intrusion exposure pathway in residences and commercial buildings, GEI will conduct EPEMs. IRA Plan Modification No. 1 proposed installing an SSDS as an EPEM. Based on data collected after installation of several systems, together with an evaluation of soil and building conditions on these and other properties, GEI concluded that an SSDS may not be the appropriate EPEM at many of the locations. Therefore, GEI designed an alternative vapor barrier and venting system, tailored to the individual characteristics of each building.

An EPEM, in the form of an SSDS is applicable to buildings with a competent concrete slab floor, concrete walls and good sub-slab air flow. An alternative EPEM, consisting of a vapor barrier and venting system, is appropriate for buildings with or without a good quality concrete floor, a fieldstone or brick foundation, and poor sub-slab air flow.

Based on the results of sub-slab soil vapor testing and/or indoor air testing, GEI initially recommended conducting EPEM at 28 residences and buildings. Whether or not and to what extent EPEMs are to be installed is dependent, in part, on DEP's pending re-assessment of its





previously published URF for PCE, as well as the technical feasibility of such measures based on sub-slab soil and other site-specific conditions.

Of the 28 properties initially targeted, SSDSs have been installed as an EPEM at six locations. As noted in Table 3-1, six residential property owners have refused EPEMs.

### 3.7.2.1 SSDS Installation

As of September 30, 2007, GEI has installed SSDS in six residence and commercial buildings listed in Table 3-6. The systems installed are similar to those commonly used to address radon in homes, as shown in Figure 3-4.

GEI retained Norfolk Services Inc. (Norfolk) of Bridgewater, Massachusetts, and Storch Radon Services, Inc. (Storch) of Taunton, Massachusetts, to install the SSDSs. The SSDSs were installed between May 7 and August 24, 2007.

Installation of an SSDS includes:

- Patching or sealing significant voids or openings in the slab, as warranted.
- Conducting diagnostic testing to evaluate air flow characteristics beneath the slab and design the number and location of extraction points and size the fan. Two to three tests are performed per home. For each test, we core a 4-inch-diameter extraction hole in the slab in the center of the test area and connect this to a ShopVac with a variable speed control. We drill small holes in the slab for monitoring sub-slab air pressure around the extraction hole. These are typically installed 5 to 15 feet from the extraction hole, and usually as two nested sets depending on basement dimensions/obstructions. Air pressure is measured with digital manometers. We then operate the ShopVac at several different vacuum levels to simulate the classes of radon-type fans. For each test run, we measure the air pressure response at the sub-slab monitoring points. The results of sub-slab vacuum at various distances from the extraction point enable us to estimate the type of fan we would need and also the extraction point spacing. We also collect a concrete and soil sample from the extraction hole cores so we can observe the thickness/integrity of the slab and soil conditions below the slab.
- Installing the SSDS by coring 1 to 7 holes (of approximately 4-inch-diameter) through the basement slab, excavating an extraction pit and attaching PVC piping to each hole. The pipes are run overhead or along the wall, and joined to one common pipe before exiting through the wall to the exterior of the house. An inline fan is installed in the exterior pipe and the pipe extended up the outside wall to above the eaves of the house. Figure 3-5 shows an example of the exterior exhaust piping associated with an SSDS.

Table 3-7 describes SSDS construction details for each home, including the number of extraction points and the size of the blower. Schematics of each home showing the locations of extraction





points are in Appendix J. Construction documents, including the installation instructions and fan specifications on the two types of fans used (GP and HS) are in Appendix J.

### **3.7.2.2 SSDS Off-gas VOC Monitoring**

The regulatory requirements for off-gas treatment for remedial air emissions are in DEP's Policy No. WSC-94-150, "Off-Gas Treatment of Point-Source Remedial Air Emissions." Off-gas contaminant treatment is not required for SSDSs that produce a total air emission rate of volatile contaminants of less than 100 lbs/yr. We estimated that each SSDS would produce significantly less than 100 lbs/yr of VOCs and therefore did not install off-gas treatment processes.

### **3.7.2.3 Confirmatory Indoor Air Sampling**

Following installation of the SSDS, GEI collected confirmatory indoor air samples. A summary of indoor air sampling events is in Table 3-3.

Indoor air samples were collected in 6-liter Summa canisters over a 4-hour period. GEI submitted the samples to Accutest for laboratory analysis for VOCs by the EPA Method TO-15 with a modified analytes list (see Section 3.4). Samples were not collected at 103 Washington Street, because it is an auto body repair facility.

Results of confirmatory indoor air sampling are in Tables 3-24c, 3-25c, 3-46c, 3-57c and 3-64c, and laboratory data reports are in Appendix H.

## **3.8 Remediation Waste**

GEI did not generate remediation waste during indoor air sampling and sub-slab soil vapor sampling. Sub-slab soil vapor sampling points were above the water table and did not require dewatering. Soil and cement cuttings from sub-slab soil vapor sampling point installation were minimal and used as backfill.

GEI disposed of concrete cores and soil cuttings generated during installation of SSDSs at the residences along with investigation derived waste that was generated as part of subsurface investigations at the Site. Spent carbon generated from air purifiers was disposed of with the carbon from the SVE/SSDSs located at 50 Tufts Street. Hazardous waste manifests are in Appendix K.





## 4. 50 Tufts Street IRA Activities

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### 4.1 Introduction

UniFirst entered into an access agreement with Somerville II, LLC, the current Property owner, in which UniFirst agreed to install an SSDS and take other mitigation measures sufficient to achieve a condition of no Imminent Hazard for a hypothetical commercial full-time worker employed (40 hours per week) at the Property. As of September 30, 2007, the commercial building located at the Property was vacant.

The SSDS began operating on April 30, 2007. Prior to operation, the following tasks were completed:

- Sealing of floor slab joints and macro-cracks and applying an industrial epoxy floor coating.
- Installing the SSDS.
- Installing off-gas treatment.

Monitoring data collected for the SSDS show vacuum influence at all sub-slab monitoring points inside the building, which indicates that the system is capturing soil vapor beneath the slab, preventing its migration to indoor air.

Based on multiple rounds of groundwater measurements, the general direction of groundwater flow at the Site is to the northeast across Tufts Street towards Knowlton and Franklin Streets. Based on the results of soil, soil vapor, and indoor air samples collected at 50 and 60 Tufts Street and the surrounding area, limited radial soil vapor migration appears to be occurring. PCE was measured in indoor air in one of the units at 60 Tufts Street, which is located north and cross gradient of the 50 Tufts Street property.

To reduce the mass of contaminants in soil vapor at the 50 Tufts Street property, and control its migration, GEI installed an SVE system which entailed:

- Installing soil vapor monitoring points
- Conducting diagnostic testing for the SVE system
- Designing and installing the SVE system





The SVE system has been operating since August 22, 2007, along with the SSDS. We have been monitoring the performance of the systems and conducting indoor and outdoor air sampling on the Property.

## **4.2 Sub-Slab Depressurization System**

Installation of the SSDS was initiated on February 20, 2007. GEI engaged T. Ford Construction of Georgetown, Massachusetts, to install the SSDS. The following tasks were completed or were ongoing prior to March 31, 2007, and were described in IRA Status Report No. 3:

- Installing sub-slab monitoring points
- Performing a sub-slab extraction diagnostic test

Since April 1, 2007, the following tasks were performed to complete the installation:

- Sealing floor slab joints and macro-cracks
- Installing the SSDS

### **4.2.1 Sealing Floor Slab Joints and Macro-cracks and Applying Epoxy Floor Coating**

The construction joints between the perimeter and interior foundation walls and the floor slab were a significant potential pathway for migration of contaminated sub-slab vapor into indoor air. On March 21, 2007, T. Ford began cleaning the joints and cracks and using a flexible sealant (Sikaflex 2-C) designed to fill moving cracks and expansion joints. Narrower non-moving cracks in the slab were filled with epoxy sealant (Sikadur 35). After filling the floor joints and cracks, two coats of epoxy were applied over the concrete slab: a basecoat of Sikagard 62 and a topcoat of Sikafloor 90. The coating products are epoxy resins that penetrate into the concrete pores and micro-cracks and create a strong, durable bond suitable for commercial applications. The total thickness of the epoxy coating profile is approximately 14 to 15 millimeters (mm; one mm = 0.001 inch). The floor sealing and coating work was completed on May 8, 2007.

### **4.2.2 SSDS Installation**

On March 21, 2007, GEI began installation of an SSDS designed to control the migration of VOC vapors from beneath the floor slab into indoor air. The SSDS installation was completed on April 30, 2007.

The SSDS includes 22 interior sub-slab extraction points connected to above-slab collection piping that is mechanically fastened to the adjacent wall or column. The locations of the sub-slab extraction points are shown in Figure 4-1. The individual extraction points were installed by coring through the concrete slab, augering through the soil to 6 feet below the slab, and installing 2-inch diameter slotted PVC piping. Each extraction point is equipped with a shut-off valve and





is connected to one of three collection headers leading to a piping manifold and central blower outside the southwest corner of the building. Piping from each extraction point also extends above the collection header to enable future conversion to a passive system with individual passive roof vents. A detail of a typical sub-slab extraction point is shown in Figure 4-2.

Ten sub-slab monitoring points were installed through the slab to monitor sub-slab vacuum coverage and VOC concentrations. The locations of sub-slab monitoring points are shown in Figure 4-1.

#### **4.2.3 Off-Gas Treatment**

The mechanical and off-gas treatment components of the SSDS consist of:

- A butterfly control valve for each of the three collection header pipes connected to the piping manifold.
- One 40-gallon water separator equipped with a high-level shut-off switch.
- One skid-mounted Nash Elmo 15 horsepower regenerative blower, with pressure gauges, controls, and particulate filter.
- Two 2,000-lb vapor-phase activated carbon adsorbers operated in series, and one standby adsorber unit.

The locations of the blower system and carbon adsorbers are shown in Figure 4-1. The two active adsorbers are operated in series (a lead adsorber and polish unit), connected by flexible 4-inch-diameter plastic hose. A third, inactive adsorber is retained as a standby unit. When VOC measurements indicate significant breakthrough of the lead adsorber, that adsorber is taken offline and the former polish unit is moved to the lead position. The standby adsorber is then brought online as the new polish unit. A change out is scheduled when VOC monitoring indicates both the lead adsorber and the standby unit have broken through. Carbon change outs of 4,000 lbs each occurred on July 10 and August 23, 2007. Each change out consists of transferring the contents of the two spent adsorbers to 55-gallon drums and refilling each adsorber with 2,000 lbs of virgin granular activated carbon (GAC). The drums of spent carbon are later shipped offsite for disposal.

### **4.3 SSDS Monitoring**

The monitoring program confirms adequate sub-slab vacuum and satisfactory operation of the SSDS, including off-gas treatment for VOCs. The monitoring program also documents the total VOC concentrations extracted by the SSDS, which we anticipate will decrease over time as mass is removed.

Operation of the SSDS commenced on April 30, 2007. Following system startup, GEI monitored the system in accordance with the Environmental Monitoring Plan presented in IRA





Plan Modification No. 5, dated May 2, 2007, for the 50 Tufts Street property, and in accordance with DEP Policy No. WSC-94-150: Off-Gas Treatment of Point-Source Remedial Air Emissions. System monitoring data were recorded on Field Monitoring Forms, which were previously submitted in monthly RMRs. A summary of the monitoring results from system startup through September 30, 2007, is presented in Table 4-1.

Initial SSDS monitoring generally consisted of measuring:

- Air pressure and total VOC concentration at each active SSDS extraction point.
- Sub-slab vapor pressure and VOC concentration at each sub-slab monitoring point.
- Air pressure and total VOC concentration in each collection header.
- Air pressure and total VOC concentration in the combined influent and the discharge from the off-gas treatment system, and also between the lead and polish carbon units (i.e., lead tank effluent).

Pressure was measured with a Dwyer digital manometer, and VOC concentrations were measured using a PID calibrated to 100 ppm isobutylene.

Long-term monitoring of the SSDS includes monthly measurement of air pressure and VOC concentration in each of the collection headers and the VOC concentration of combined carbon influent and system discharge. In addition, the VOC concentration in the effluent of the lead carbon adsorber is monitored weekly.

To verify results obtained using the PID, samples of the influent and discharge streams from the off-gas treatment system were collected for laboratory analysis. On May 1 and June 12, 2007, off-gas treatment influent and discharge samples were collected using Summa canisters, and the samples were submitted to Accutest for analysis by Method TO-15. Sampling checklists completed during the sampling events are in Appendix L. The results of these samples are summarized in Table 4-2, and the laboratory data reports are in Appendix L.

## **4.4 Interior Pipe Removal**

On June 21, 2007, GEI engaged Norfolk to remove overhead piping that contained residual PCE and a potential non-MCP source for VOCs to indoor air. GEI screened overhead pipes with a PID and connected a vacuum to the open pipe ends to confirm the piping was empty.

Approximately 2 gallons of liquid were removed, stored in a 55-gallon drum, and transported offsite under a hazardous waste manifest. Approximately 50 feet of 1.5-inch-diameter piping, and 60 feet of 2-inch-diameter piping, were removed from the building, cut into 6-foot sections, and transported offsite as scrap metal to Middleboro Recycling, Inc., in North Middleboro, Massachusetts.





## **4.5 Soil Vapor Extraction System**

GEI engaged Geosearch, Inc., of Fitchburg, Massachusetts, and Norfolk to conduct investigation activities and install the SVE system.

### **4.5.1 Installation of Soil Vapor Monitoring Points (July 9 to 12, 2007)**

Between July 9 and 12, 2007, GEI observed Geosearch install 38 temporary soil vapor monitoring points using a Geoprobe<sup>®</sup> and hand tools in areas on the northern, western, and southern sides of the Property building, and at 60 Tufts Street, adjacent to the northern Property boundary. Geosearch also installed three overburden monitoring wells with soil vapor sampling ports: one in the grassy southern portion of the Property, and two in the parking area at 60 Tufts Street. Construction details of the monitoring points and wells are summarized in Table 4-3. The locations of the monitoring points and wells are shown in Figure 4-3a and Figure 4-3b. Two of the soil vapor monitoring points in the northern parking lot (SVT-5D and SVT-8S) were equipped with 2-inch diameter PVC screened sections for use as temporary SVE points for pilot testing.

On July 17, 2007, GEI collected soil vapor samples from four monitoring points using Summa canisters. The samples were submitted to Accutest for laboratory analysis by Method TO-15. The results are summarized in Table 4-4, and were used to calibrate handheld PID readings and to facilitate the design of the SVE system. The laboratory data reports and sampling checklists are in Appendix M.

The monitoring points have been used for ongoing measurements of soil vapor quality, evaluating the influence of the SVE system on soil vapor pressure outside the building, and providing data to support remedial design and assessment. During installation of the monitoring points, GEI personnel collected information on soil vapor and soil conditions.

### **4.5.2 Diagnostic Test and Design Recommendation**

From July 25 through 31, 2007, GEI conducted an SVE diagnostic test in the north parking area to estimate the radius of influence of proposed SVE points. The test consisted of:

- Connecting the Site building SSDS to temporary extraction points (SVT-5D and SVT-8S) via temporary aboveground piping.
- Adjusting the SSDS extraction flow and vacuum over several different time periods to create various soil vapor pressure conditions.
- Measuring the pressure at temporary soil vapor monitoring points during the manipulation of the soil vapor pressure conditions.





Vacuum for the test was induced by connecting interior SSDS extraction point EP-C8 with flexible 2-inch diameter vacuum hose to the outdoor extraction points SVT-5D and SVT-8S.

The results of the diagnostic test are summarized in Table 4-5 and indicate that with an applied vacuum of 3 to 11 inches of water column to the pilot SVE points, a 45 to 90-foot radius of vacuum influence could be achieved. For the design of the SVE system, a 30-foot wide spacing was recommended for extraction points along the 50/60 Tufts Street property line and near the 50 Tufts Street building to provide overlapping vacuum influence when all extraction points were operating.

#### **4.5.3 Soil Vapor Extraction System Installation**

Between August 13 and 24, 2007, GEI supervised the installation of the SVE system at the Property. On August 13, 2007, Geosearch installed seven SVE points. From August 14 through 24, 2007, Norfolk excavated trenches and installed SVE system piping. Norfolk connected individual SVE points to underground header pipes. Aboveground pipes on the western wall of the building were connected between the SVE headers and the existing manifold pipe for the SSDS. Vapor flowing from the SVE headers were combined with the flow from the SSDS headers for treatment with the existing GAC units previously installed to treat the SSDS off-gas (two, 2,000-lb carbon units in series).

Seven SVE points were installed with 4.25-inch, inside-diameter, hollow-stem augers to a depth of 10 feet. The locations of the SVE points are shown in Figures 4-3a and 4-3b, and the construction details of a typical SVE point are shown in Figure 4-4. Each SVE point was constructed of 2-inch-diameter Schedule 40 PVC piping screened from 6 to 10 feet below the ground surface (bgs) with 0.02-inch diameter slotted PVC well screen. Individual SVE points were connected to 4-inch-diameter Schedule 40 PVC collection headers installed in trenches 24 to 30 inches deep in the parking areas north and south of the building. The north and south collection headers daylight near the northwest and southwest corners of the building, respectively. Each header was pitched to drain condensate back to one designated SVE point in each parking area. Individual SVE points were equipped with a shut-off/throttling gate valve and protected with a flush-mounted 18-square-inch, heavy-duty (H-20 load rated) steel manhole.

The above-ground sections of the SVE header pipes were secured to the exterior western wall of the building and connected to the existing pipe manifold inside the blower enclosure where the flow from the two SVE headers combines with the flow from the three SSDS headers. The effluent from the blower is treated with the existing GAC adsorbers, previously installed to treat the SSDS off-gas (two active 2,000-lb carbon units in series).

#### **4.6 Soil Vapor Extraction System Monitoring**

The SVE system was activated on August 22, 2007. Following startup of the SVE system, we measured air pressure and VOC concentrations at selected monitoring points to confirm





satisfactory operation of the SVE system, and to document changes in VOC concentrations. A summary of monitoring results from system startup through September 30, 2007, is in Table 4-6.

The SVE system monitoring consists of measuring air pressure and total VOC concentration at each of the active SVE points, collection headers, and selected soil vapor monitoring points. As noted above, VOC concentrations also are measured in the combined influent and the discharge from the off-gas treatment system, and also between the lead and polish carbon units. Pressure is measured with a Dwyer digital manometer, and VOC concentrations are measured using a PID calibrated to 100 ppm isobutylene.

Because the operation of the SVE system affected the flow rates and sub-slab vacuum of the SSDS, we monitored the SSDS operation on a daily basis during the first week of SVE operation. Although the vacuum measured at SSDS extraction points decreased slightly after activating the SVE points, full vacuum coverage below the slab was maintained.

The SVE system uses the same mechanical and off-gas treatment as the SSDS. Therefore, the current long-term monitoring program described in Section 4.3 for the SSDS is sufficient for monitoring the operation of the equipment shared by the SSDS and SVE system. The program currently consists of monthly monitoring, at a minimum, to evaluate whether or not system parameters such as flow rate, pressure, and off-gas concentrations are at satisfactory levels. In addition, the VOC concentration in the effluent of the lead carbon adsorber, and the system discharge is monitored weekly.

## **4.7 Indoor and Outdoor Air Sampling**

GEI collected air samples inside and outside the building to evaluate indoor air quality at 50 Tufts Street. Indoor air samples were collected on May 1 and 14, June 28, and August 28, 2007, using Summa canisters. Data collected during the sampling events, including environmental conditions, were recorded on Ambient Air Sampling Checklists included in Appendix N. Photos taken of the sample locations are also in Appendix N. The samples were submitted to Accutest for laboratory analysis by Method TO-15. Laboratory results are summarized in Table 4-7 and Figure 4-5. Meteorological data is summarized in Table 4-8. The laboratory data reports are in Appendix O.

The results of the first two air sampling rounds collected on May 1 and 14, 2007, were likely affected by residual PCE which was discovered in several pipes hanging in the rafters of the building and subsequently removed on June 21, 2007. Therefore, the first two rounds are not considered representative of soil vapor intrusion into indoor air in the building. Similarly, the fourth round, collected on August 28, 2007, was affected by the roll-offs storage of excess soil generated during SVE installation and was not considered representative of soil vapor intrusion





into indoor air in the building. The roll-offs containing the excess soils have since been removed from the Property.

The round of indoor air samples collected on June 28, 2007, was representative of conditions during operation of the SSDS, but prior to start-up of the SVE system. The average VOC concentration measured during the June sampling was below the Commercial Worker Standard.

#### **4.8 Remediation Waste Management**

Remediation waste generated at the Property between April 1 and September 30, 2007, included spent GAC from the carbon adsorbers and soil excavated during installation of the SVE system. Copies of hazardous waste manifests are in Appendix K.

Forty 55-gallon drums of spent GAC were generated during change outs of carbon adsorbers on July 10 and August 23, 2007. On September 13, 2007, the spent carbon was transported offsite by New England Disposal Technologies, Inc. (NEDT) of Shrewsbury, Massachusetts, under a hazardous waste manifest. The spent carbon was delivered to Rineco of Benton, Arkansas, for use by cement kilns as a waste-derived fuel.

Approximately 60 cubic yards (cy) of soil were excavated during installation of the SVE system and stored in four, lined and covered roll offs. On September 12, 2007, TMC Services, Inc. (TMC) transported the soil under a hazardous waste manifest to Stablex, Inc., in Blainville, Quebec, Canada, for landfill disposal.





## 5. Subsurface Investigation

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### 5.1 Previous Subsurface Investigations

#### 5.1.1 *Investigations Performed by Others*

Subsurface investigations were originally conducted in 2002 by a former tenant at the 50 Tufts Street property as part of environmental due diligence. Ten soil borings (SH-1 through SH-5, SH-B1, SH-B2, and SH-MW1 through SH-MW3) and eight monitoring wells (SH-1 through SH-5, and SH-MW1 through SH-MW3) were installed; and soil and groundwater samples were collected for laboratory analyses of VOCs. In 2004, two soil borings (Soil Boring-1 and Soil Boring-2) and two wells (GEO-1 and GEO-2) were installed on the Property, and four wells (GEO-3 through GEO-6) were installed on the eastern side of Tufts Street. Groundwater was collected for laboratory analyses of VOCs. Monitoring well locations are in Figure 5-1. Available information regarding these subsurface investigations was presented in the Phase I Report dated June 16, 2006.

#### 5.1.2 *GEI Investigations (April through May 2006)*

During April through May 2006, GEI performed subsurface investigations at the Site. One monitoring well (MW101) was installed on Tufts Street across from the northern end of the Property, two wells (MW102 and MW103) were installed on Morton Street, one well (MW104) was installed on the Property near the intersection of Washington and Tuft Streets, and one well (MW105) was installed on Cross Street near Alston Street. Monitoring well locations are shown in Figure 5-1. Soil samples were collected during advancement of the borings. Groundwater samples were collected for laboratory analysis for VOCs. Information regarding this subsurface investigation was presented in the IRA Status Report No. 2 dated November 13, 2006.

#### 5.1.3 *GEI Investigations (January through March 2007)*

During January through March 2007, GEI performed subsurface investigations at the Site:

- Three wells (MW106, MW107, and MW108) were installed on Dell Street.
- One well was installed on Tufts Street across from the southern end of the Property (MW109).
- Four wells were installed on Knowlton Street (MW110, MW111, MW112, and MW112A).
- One well was installed in the parking lot adjacent to the American Legion Post located at 163 Glen Street (MW113).





- Two wells were installed on Alston Street (MW114 and MW115R).
- One well was installed on the south side of the Capuano Center (MW116).

Monitoring well locations are in Figure 5-1. Soil samples were collected during advancement of the borings. Groundwater and soil vapor samples were collected for laboratory analysis for VOCs. Information regarding this subsurface investigation was presented in the IRA Status Report Nos. 1 and 3, dated May 15, 2007.

Boring information and well construction details for previous subsurface investigations are in Table 5-1.

Selected groundwater samples collected in January 2007 were tested for natural attenuation parameters and included: alkalinity, arsenic, iron III, total organic carbon (TOC), nitrate, nitrite, sulfate, sulfide, chloride, methane, ethane, pH, oxidation/reduction potential (ORP), conductance, dissolved oxygen (DO), and VOC concentrations. Natural attenuation parameter testing results from January 2007 are in Table 5-2.

## **5.2 Summary of Subsurface Investigation (April through September 2007)**

Subsurface investigations conducted from April through September 2007 were associated with both ongoing IRA activities and Phase II Comprehensive Site Assessment (CSA) activities. A summary of the subsurface investigations are in Tables 5-3 through 5-6.

The subsurface investigations were performed by GEI and include:

- Installation of soil borings and monitoring wells
- Monitoring well abandonment
- Soil sampling
- Geophysical bedrock survey
- Soil vapor sampling
- Groundwater level measurements
- Groundwater sampling
- Hydraulic conductivity testing

## **5.3 Soil Boring and Monitoring Well Installation**

Between June 20 and August 9, 2007, GEI observed Geosearch drill a total of 10 borings and complete them as groundwater monitoring wells. Four of the 10 monitoring wells (MW117S, MW118S, MW119S, and MW120S) were screened in overburden, three were screened in till (MW117T, MW118T, and MW119T), and three were screened in bedrock (MW117D, MW118D, and MW120D). Monitoring well locations are shown in Figure 5-1. A summary of boring and monitoring well construction information is in Table 5-1. A summary of soil boring and monitoring well installation activities is in Table 5-3. Boring logs and monitoring well





installation reports are in Appendix P. The locations and elevations of the newly installed monitoring wells shown in Figure 5-1, were surveyed by BSC Group of Boston, Massachusetts, in July and September 2007.

## **5.4 Monitoring Well Abandonment**

On August 8, 2007, GEI observed Geosearch abandon SH-MW1 on the 50 Tufts Street Property by removing the roadbox and the top approximately 3 feet of the well, including the surface seal, and filling the remaining monitoring well and annular space with a pressurized Portland cement and bentonite grout. The monitoring well was abandoned because it was screened across the overburden and bedrock contact. The former location of SH-MW1 is in Figure 5-1.

## **5.5 Soil Sampling**

### **5.5.1 Subsurface Soil Sampling**

During vacuum excavation activities in June 2007, GEI collected one soil sample from MW117D from a depth of approximately 2 to 3 feet using a hand auger. The soil sample was screened for VOCs in the field using a PID and the jar headspace method, and was submitted to Accutest for chemical analysis of VOCs.

GEI collected continuous soil samples during hollow-stem auger and Geoprobe<sup>®</sup> drilling conducted from June through August 2007. GEI screened the samples in the field for VOCs using the jar headspace method and submitted selected samples to Accutest for chemical analysis of VOCs.

The results of field screening are shown on boring logs in Appendix P. Soil testing results are summarized in Table 5-7 along with soil data from previous investigations. A summary of the testing results of PCE, TCE, and cis-1,2-dichloroethene, where detected, are shown in Figure 5-2. The laboratory data reports associated with the March and June through August 2007 soil testing are in Appendix Q.

### **5.5.2 Rock Core and Additional Subsurface Soil Sampling**

GEI submitted representative soil samples of the major strata (fill, silt, and till) from MW117D and MW118D to PTS Laboratories of Santa Fe Springs, California, for grain-size and dry bulk density analyses. GEI also submitted two rock core samples from each boring for analysis of TOC, matrix porosity, and matrix density. The results of the soil and rock testing are summarized in Tables 5-8 and 5-9, respectively. The laboratory data reports are in Appendix R.





### **5.5.3 Surface Soil Sampling: Capuano Community Gardens**

GEI collected two surface soil samples for VOC testing on March 30, 2007, from the community garden located northeast of the Capuano Center on Franklin Street, using a hand auger and garden trowel. The soil samples were collected in native material at a depth of approximately 2.5 feet, which is just below a layer of imported organic soil. The samples were submitted to Accutest for chemical testing of CVOCs.

The approximate soil sample locations are shown in Figure 5-1 and results are in Table 5-7. Laboratory data reports associated with the sampling are in Appendix Q. No CVOCs were detected above laboratory reporting limits in either of the samples.

## **5.6 Soil Vapor Sampling**

During monitoring well installation from June through August 2007, GEI observed Geosearch install four groundwater monitoring wells that would also serve as soil vapor sampling points. Monitoring well construction was modified by increasing the length of the screen above the water table to allow for soil vapor infiltration. To prevent the infiltration of air into the well, Geosearch sealed the annular space around the well with a thicker layer of hydrated bentonite chips than is typically used in monitoring well construction. GEI also equipped each monitoring well with a soil vapor sampling port and valve. The top of each monitoring well was sealed with a removable pipe cap and gasket, and the cap was not removed for 24 hours prior to soil vapor sampling. Monitoring well construction reports are in Appendix P.

Dates of soil vapor sampling events conducted between April and September 2007 are in Table 5-4. Soil vapor testing results are summarized in Table 5-10 and shown in Figure 5-3. The laboratory data reports, associated with April through September 2007 soil vapor testing, are in Appendix S.

### **5.6.1 Soil Vapor Sampling Methods**

Soil vapor samples were collected using 6-liter Summa canisters and regulators provided by Accutest. Each canister was certified clean by Accutest, and copies of the certifications are in Appendix S.

The regulator was attached to the canister after it was brought to the sampling location, and the pressure gauge reading was recorded on a sampling checklist (Appendix T). The Summa canister was connected to the soil vapor sampling port using a pressure fitting and Teflon tubing. The laboratory-set flow regulator was subsequently turned on and the time recorded. The regulator was turned off after 1 hour, and the time and final pressure gauge readings were recorded.





### **5.6.2 Meteorological Conditions**

Meteorological conditions including temperature, barometric pressure, prevailing wind direction, and general weather conditions, were recorded on the sampling checklists at the beginning and end of soil vapor sampling. A summary of meteorological conditions during soil vapor sampling events from April through September 2007 is in Table 5-11.

## **5.7 Groundwater Level Measurements**

GEI measured site-wide groundwater levels in April and July 2007, prior to groundwater sampling, and at selected locations monthly from April through September 2007. Groundwater level measurements from April through September 2007 are in Table 5-12.

## **5.8 Groundwater Sampling**

GEI conducted quarterly site-wide groundwater sampling in April and July 2007, and at selected additional locations in August 2007. A summary of groundwater sampling activities, including dates of sampling, is in Table 5-5.

Groundwater testing results are summarized in Table 5-2 along with groundwater data from previous investigations. A summary of groundwater testing data is displayed in Figure 5-4. The laboratory data reports associated with the April through September 2007 groundwater testing are in Appendix U.

### **5.8.1 Groundwater Sampling: Methods**

GEI collected groundwater samples from monitoring wells using low-flow sampling techniques. GEI collected groundwater samples with a Teflon bailer from monitoring wells where it was not possible to use low-flow techniques. These locations are identified in Table 5-5. Wells that did not have sufficient water for the collection of groundwater samples using either low-flow methods or Teflon bailers are noted in Table 5-5. Wells that were presumed destroyed, or where GEI personnel were otherwise unable to collect groundwater samples, are also listed in Table 5-5.

Groundwater samples were submitted to Accutest for chemical analysis of VOCs. Beginning in June 2007, selected groundwater samples were tested for CVOCs only.

### **5.8.2 Monitoring Well MW-CS-1**

During IRA and Phase II Investigation activities, GEI located an existing 2-inch-diameter monitoring well at the Site adjacent to 60 Tufts Street near the corner of Cross and Tufts Streets. Since no information was available regarding the origin of the monitoring well, GEI named the well MW-CS-1. Well construction information that was observed in the field is noted in





Table 5-1. GEI sampled the well in May 2007 and submitted the sample to Accutest for chemical analysis of VOCs.

Results of the testing are in Table 5-2 and are displayed in Figure 5-4. The laboratory data report is in Appendix U.

## **5.9 Hydraulic Conductivity Testing**

### **5.9.1 *In-Situ Variable Head Permeability Testing***

GEI performed in-situ rising head permeability tests in six overburden monitoring wells in April 2007 (GEO-2, SH-MW2, MW109, MW111, MW112A, and MW116), and rising and falling head permeability tests in two bedrock borings (MW117D and MW118D) prior to monitoring well installation in June 2007. Dates of permeability testing are in Table 5-6.

GEI conducted the rising head permeability tests in overburden wells by rapidly pumping water from each well to create a drawdown of the water level in the well. Recovery of the water level was monitored using a water level indicator and recorded using a data transducer.

GEI conducted falling head tests in the bedrock borings using the “slug test” technique. When the “slug” was inserted into the boring, the water level in the well was temporarily elevated. GEI then monitored the recovery of the water level. Once water level equilibrated after the falling head test, GEI conducted a rising head permeability test by removing the “slug,” which created drawdown of the water level. GEI monitored recovery of the water level following “slug” removal. The “slug” consisted of approximately 10 feet of 3-inch-diameter, sealed steel drill casing. The “slug” was inserted and removed into the bedrock boring using a hydraulic winch.

### **5.9.2 *Hydraulic Conductivity Calculations***

GEI calculated hydraulic conductivity values from the recovery measurements collected during the permeability tests using the Hvorslev method [Hvorslev, 1951]. The calculations are in Appendix V.

Hydraulic conductivity measured in a monitoring well screened in sand, GEO-2, was approximately  $5.0 \times 10^{-5}$  centimeters per second (cm/s), or approximately 0.14 feet per day (feet/day). In SH-MW3, screened in silt, the hydraulic conductivity was approximately  $2.2 \times 10^{-4}$  cm/s (0.62 feet/day). For a monitoring well screened in till, the hydraulic conductivities ranged from  $6.0 \times 10^{-7}$  cm/s (0.00 feet/day) in MW111 to  $1.3 \times 10^{-5}$  cm/s (0.04 feet/day) in MW 112A. Bedrock hydraulic conductivities ranged from  $6.8 \times 10^{-5}$  cm/s (0.19 feet/day) in MW117D to  $9.0 \times 10^{-4}$  cm/s (2.55 feet/day) in MW116.





## **5.10 Geophysical Survey**

In April and June 2007, GEI engaged Hager Geoscience (Hager) of Woburn, Massachusetts, to perform a site-wide geophysical survey to locate the bedrock surface. Hager conducted the survey by performing approximately 17 transects using ground penetrating radar (GPR) and three transects using seismic methods. Seismic methods were used to constrain GPR depth conversions. Hager performed GPR transects using two different antenna frequencies, 40 and 100 megahertz (MHz). Transect locations are shown in Figure 5-5.

Data from boring logs and the GPR transects suggest that bedrock is generally 30 to 60 feet bgs.

Hager is currently calibrating the GPR survey with boring log, seismic, and the 40 and 100 MHz and GPR data. The report will be provided to DEP in a future submittal.

## **5.11 Investigation-Derived Waste**

TMC transported all investigation-derived waste (IDW) generated between April 7 and August 22, 2007, to the General Chemical Corporation (GCC) facility located at 133-138 Leland Street in Framingham, Massachusetts. IDW consisted of either soil from drilling activities or groundwater from monitoring well development and sampling.

Copies of hazardous waste manifests are in Appendix K.





## **6. Planned Activities**

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### **6.1 Capuano Center**

#### **6.1.1 SSDS Operations Monitoring**

GEI will continue to monitor the operation of the SSDS. GEI will measure the following in October, November, and December 2007:

- VOC concentrations inside Classrooms 126, 138, 142, 146, and 141 using Summa canisters for laboratory analysis.
- VOC concentrations on the roof of the building, downwind of the SSDS exhaust, using Summa canisters for laboratory analysis.
- Sub-slab soil vapor VOC concentrations at each of six monitoring points using a ppbRAE.
- VOC concentrations in the combined influent to the blower in the temporary enclosure and from a sampling port located in the exhaust stack using a ppbRAE.

Mechanical inspections will continue on a weekly basis through December.

Following the December sampling event, indoor air sampling will be conducted quarterly for one year. Whether or not and to what extent additional indoor air monitoring may be required will be evaluated and any further monitoring plans will be submitted to DEP for review and comment.

#### **6.1.2 Permanent System Upgrade**

GEI will complete evaluation of the permanent system upgrade of the SSDS in February 2008. The focus of the system upgrade will be a permanent housing and location for the mechanical system. We anticipate implementing the permanent SSDS upgrades in early 2008.

### **6.2 Residences and Commercial Properties**

#### **6.2.1 Ongoing Response Actions**

GEI will continue response actions at the residences and commercial properties, which include:

- Continuing to collect indoor air samples quarterly to complete one year of testing in 33 of the 62 buildings in the study area where prior sub-slab soil vapor sampling and/or indoor air testing results have indicated that the indoor air quality does not a significant risk, and





does not represent a CEP. Based on the testing results, GEI will evaluate if conditions change that would warrant conducting an EPEM. Whether or not and to what extent EPEMs are to be conducted is dependent, in part, on DEP's pending re-assessment of its previously published URF for PCE, as well as the technical feasibility of such measures based on sub-slab soil and other site-specific conditions.

- As appropriate, institute an EPEM at the 16 remaining residences and buildings where such measures initially were recommended. (Six property owners have refused EPEMs). GEI may re-evaluate the need to conduct an EPEM, or an additional EPEM, at individual buildings based on DEP's re-assessment of the URF for PCE. In particular, this evaluation may affect residences where indoor air testing demonstrates that the measured concentrations represent a condition of No Significant Risk, but the CEP has not been eliminated.
- Monitor the buildings where an SSDS has been installed as an EPEM at six locations. GEI will collect pressure measurements and one round of indoor air samples during winter conditions.

### **6.2.2 Permanent Solution for Residential and Commercial Properties**

In order to achieve a Permanent Solution at a residence or commercial building, GEI intends to issue a partial Response Action Outcome (RAO) for each property or properties.

Subject to property owners' approval, we would:

- Prepare and submit an RAO-P for each property, or groups of properties, defined as the environmental media within the boundaries of each property exclusive of groundwater.
- Address properties that require EPEMs in the same manner, regardless of what form of venting systems and vapor barriers are installed, with a Class A-3 RAO-P supported by an AUL that provides for inspections and maintenance.
- Address properties located within the boundaries of the Site, but that do not require an EPEM, by issuing a Class B-1 RAO-P.
- Continue to address all remaining requirements under the Massachusetts Contingency Plan (MCP) to conduct remedial actions, monitoring, and reporting (including RMRs) under the existing RTN for the Site as a whole.

## **6.3 50 Tufts Street**

### **6.3.1 Soil Vapor Off-Gassing Evaluation**

EH&E conducted flux chamber testing on October 4, 2007, to evaluate the potential effect of VOCs off-gassing from soil adjacent to the building on concentrations of VOCs measured in indoor air of the building.





### **6.3.2 Indoor Air Testing**

GEI will conduct indoor air sampling at up to six locations. Samples will be collected using Summa canisters and will be submitted for laboratory analysis by Method TO-15. Samples were collected on October 4, 2007, and will be collected again:

- Following the installation of a heating system by Somerville II or its tenant; and
- Quarterly until August 2008.

### **6.3.3 Operations Monitoring Plans**

GEI will continue to monitor the operations of the SSDS and SVE. The SSDS and SVE use the same mechanical equipment and off-gas treatment. The monitoring program consists of monthly monitoring, at a minimum, to confirm that system parameters such as flow rate, vacuum, and off-gas concentrations remain consistent, and to monitor for potential breakthrough of the carbon units.

The monitoring program currently includes measuring:

- Total VOC concentrations and vacuum pressure at each of the active SVE System extraction points and from the influent and effluent of the off-gas treatment system using a PID and manometer, respectively.
- Total VOC concentration in the influent and effluent from the carbon treatment system and between carbon canisters using a PID.
- System parameters such as flow rate, vacuum, and carbon usage rates.
- Soil vapor pressure at selected soil vapor monitoring points using a manometer with a resolution of 0.001-inch water.

## **6.4 Subsurface Investigation**

GEI will be submitting an addendum to the Phase II Scope of Work, originally submitted to DEP on May 18, 2007, describing additional subsurface delineation activities, if warranted.

### **6.4.1 Monthly Groundwater Gauging**

GEI will measure the depth to water in the existing and recently installed wells at the Site monthly from October 2007 to May 2008. We will also continue to monitor data loggers in three existing wells to continuously measure depth to groundwater.





#### **6.4.2 *Quarterly Groundwater Sampling***

GEI will collect groundwater samples from selected wells at the Site on a quarterly basis. Groundwater samples will be collected using low-flow methods and submitted to Accutest for laboratory analysis for VOCs.

#### **6.4.3 *Quarterly Soil Vapor Sampling***

GEI will collect quarterly soil vapor samples from monitoring wells MW106 through MW121S in January and April 2008. Soil vapor samples will be submitted to Accutest for laboratory analysis for VOCs.







Geotechnical  
Environmental and  
Water Resources  
Engineering





**Table 1-1**  
**Summary of Immediate Response Action Submittals**  
**50 Tufts Street**  
**Somerville, Massachusetts**

1. **Imminent Hazard Evaluation**, RTNs 3-23246 and 3-24358, 50 Tufts Street, Somerville, Massachusetts, dated January 9, 2009
2. **IRA Plan**, 50 Tufts Street, Somerville, Massachusetts, RTNs 3-23246, 3-24358 and 3-24376, dated January 9, 2006.
3. **IRA Status Report No. 1**, 50 Tufts Street, Somerville, Massachusetts, RTNs 3-23246, 3-24358 and 3-24376, dated May 8, 2006.
4. **Phase I, Initial Site Investigation, and Tier Classification**, 50 Tufts Street, Somerville, Massachusetts, RTNs 3-23246, 3-24358 and 3-24376, dated June 16, 2006.
5. **Interim IRA Status Report and IRA Plan Modification**, 50 Tufts Street, Somerville, Massachusetts, RTNs 3-23246, 3-24358 and 3-24376, dated June 27, 2006.
6. **Imminent Hazard Retraction**, 50 Tufts Street, Somerville, Massachusetts, RTN 3-26114, dated September 21, 2006.
7. **IRA Plan Modification No. 2**, 50 Tufts Street, Somerville, Massachusetts, RTN 3-23246, dated September 21, 2006.
8. **IRA Plan**, RTN 3-26114, 50 Tufts Street, Somerville, Massachusetts, dated November 13, 2006
9. **IRA Status Report No. 2 and Plan Modification No. 3**, 50 Tufts Street, Somerville, Massachusetts, RTN 3-23246, dated November 13, 2006.
10. **IRA Plan Modification No. 4**, 50 Tufts Street, Somerville, Massachusetts, RTNs 3-23246 and 3-26114, dated February 22, 2007.
11. **IRA Plan**, 50 Tufts Street, Somerville, Massachusetts, RTN 3-26114, dated April 9, 2007
12. **IRA Plan Modification No. 1**, 50 Tufts Street, Somerville, Massachusetts, RTN 3-26114, dated April 12, 2007
13. **IRA Plan Modification No. 5**, 50 Tufts Street, Somerville, Massachusetts, RTN 3-23246, dated May 5, 2007
14. **IRA Status Report No. 3**, 50 Tufts Street, Somerville, Massachusetts, RTN 3-23246 & **IRA Status Report No. 1** RTN 3-26114, dated May 16, 2007
15. **Phase II Scope of Work**, RTNs 3-23246 and 3-26114, 50 Tufts Street, Somerville, Massachusetts, dated May 18, 2007
16. **IRA Plan Modification No. 6**, 50 Tufts Street, RTN 3-23246. Somerville, Massachusetts, dated July 5, 2007
17. **Phase II Scope of Work Amendment**, RTNs 3-23246 and 3-26114, 50 Tufts Street, Somerville, Massachusetts, dated July 31, 2007
18. **Remedial Monitoring Report No. 1**, RTN 3-23246, 50 Tufts Street, Somerville, Massachusetts, dated August 30, 2007





19. **Monthly Remedial Monitoring Report No. 2**, RTN 3-23246, 50 Tufts Street, Somerville, Massachusetts, dated August 30 2007
20. **Monthly Remedial Monitoring Report No. 3**, RTN 3-23246, 50 Tufts Street, Somerville, Massachusetts, dated August 30, 2007
21. **Monthly Remedial Monitoring Report No. 4**, RTN 3-23246, 50 Tufts Street, Somerville, Massachusetts, dated August 30, 2007
22. **Monthly Remedial Monitoring Report No. 5**, RTN 3-23246, 50 Tufts Street, Somerville, Massachusetts, dated October 19, 2007
23. **Monthly Remedial Monitoring Report No. 6A**, RTN 3-23246, 50 Tufts Street, Somerville, Massachusetts, dated October 31, 2007
24. **Monthly Remedial Monitoring Report No. 6B**, RTN 3-23246, 50 Tufts Street, Somerville, Massachusetts, dated November 8, 2007
25. **Monthly Remedial Monitoring Report No. 7A**, RTN 3-23246, 50 Tufts Street, Somerville, Massachusetts, dated November 8, 2007
26. **Monthly Remedial Monitoring Report No. 7B**, RTN 3-23246, 50 Tufts Street, Somerville, Massachusetts, dated November 8, 2007





Table 2-1  
Summary of Testing Results - Indoor Air Samples  
Capuano Center - 150 Glen Street  
Somerville, Massachusetts

Sample Location: Sample Name:  Sample Date: Collected By: Units:	Cafetorium		Room 101C				Room 108				Room 121		Room 122				Room 125			
	150 Glen-Caf		150 Glen Room 101A		150 Glen Room 101B		150-Glen-Room 108A		150-Glen-Room 108B		150-Glen-Room 121		150-Glen-Room 122		150-Glen-Rm 122		150 Glen-Room 125A		150 Glen-Room 125B	
	1/6/2007 GEI		12/27/2006 GEI		12/28/2006 GEI		12/27/2006 GEI		12/28/2006 GEI		1/6/2007 GEI		1/6/2007 GEI		2/7/2007 GEI		12/27/2006 GEI		12/28/2006 GEI	
	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV
Analyte																				
Volatile Organic Compounds (VOCs)																				
Carbon tetrachloride	0.49 JS	0.078 JS	< 1.3	< 0.20	< 1.3	< 0.20	0.94 J	0.15 J	< 1.3	< 0.20	0.52 JS	0.082 JS	0.51 JS	0.081 JS	0.69 J	0.11 J	1.0 J	0.16 J	< 1.3	< 0.20
1,1-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,2-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
cis, 1,2-Dichloroethene	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethylene (PCE)	0.88 JS	0.13 JS	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes

1.
- For a complete list of analytes see the laboratory data sheets.
2.
- ug/m<sup>3</sup> = micrograms per cubic meter.
3.
- ppbV = parts per billion by volume.
4.
- "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.

Qualifying Notes

- J
- The reported result is below the laboratory reporting limit and is estimated.
- J+
- The reported result is estimated.
- L
- The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- S
- The result is estimated due to Internal Standard recovery outside of the control limits.





Table 2-1  
Summary of Testing Results - Indoor Air Samples  
Capuano Center - 150 Glen Street  
Somerville, Massachusetts

Sample Location: Sample Name:  Sample Date: Collected By: Units:		Room 126																Room 134			
		150 Glen-Room 126		150 Glen-Room 100 (Field Duplicate of 150 Glen-Room 126)		150 Glen-Rm 126		150 Glen-Rm 126		150 Glen-Rm 126		150 Glen-Rm 126		150 Glen-Rm 126		150 Glen-Rm 126		150 Glen-Room 134		150 Glen-Rm 134	
		1/13/2007 GEI		1/13/2007 GEI		2/7/2007 GEI		3/8/2007 GEI		4/20/2007 GEI		5/17/2007 GEI		7/30/2007 GEI		9/10/2007 GEI		1/13/2007 GEI		2/7/2007 GEI	
		ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m3	ppbV	ug/m3	ppbV	ug/m3	ppbV	ug/m3	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV
Analyte																					
Volatile Organic Compounds (VOCs)																					
Carbon tetrachloride	0.69 J	0.11 J	0.63 J	0.10 J	0.94 J	0.15 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.60 J	0.095 J	0.69 J	0.11 J	0.75 J	0.12 J	0.94 J	0.15 J	
1,1-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	
1,1-Dichloroethylene	< 0.79	< 0.20	< 0. 79	< 0.20	< 0. 79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	
1,2-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	
cis, 1,2-Dichloroethene	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	
Tetrachloroethylene (PCE)	0.88 J	0.13 J	0.75 J	0.11 J	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	3.2	0.47	< 1.4	< 0.20	
1,1,1-Trichloroethane	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	
Trichloroethylene (TCE)	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	0.54 J	0.10 J	< 1.1	< 0.20	

General Notes

1.
- For a complete list of analytes see the laboratory data sheets.
2.
- ug/m<sup>3</sup> = micrograms per cubic meter.
3.
- ppbV = parts per billion by volume.
4.
- "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.

Qualifying Notes

- J
- The reported result is below the laboratory reporting limit and is estimated.
- J+
- The reported result is estimated.
- L
- The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- S
- The result is estimated due to Internal Standard recovery outside of the control limits.





Table 2-1  
Summary of Testing Results - Indoor Air Samples  
Capuano Center - 150 Glen Street  
Somerville, Massachusetts

Sample Location: Sample Name:  Sample Date: Collected By: Units:	Room 136		Room 137				Room 138													
	150 Glen-Room 136		150 Glen-Room 137A		150 Glen-Room 137B		RM138		150 Glen-Room 138		150 Glen-Room 138		150 Glen-Room 138 (Alpha Dupliate of 150 Glen-Room 138)		150 Glen-Rm 138		150 Glen-Rm 139 (Field Duplicate of 150- Glen-Rm 138)		150-Glen-Rm 138	
	1/13/2007 GEI		1/6/2007 GEI		1/6/2007 GEI		1/2/2007 GEI		1/6/2007 GEI		1/13/2007 GEI		1/13/2007 GEI		2/7/2007 GEI		2/7/2007 GEI		3/8/2007 GEI	
	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV
	Volatile Organic Compounds (VOCs)																			
Carbon tetrachloride	0.69 J	0.11 J	0.52 JS	0.082 JS	< 1.3	< 0.20	< 1.3	< 0.20	0.49 JS	0.078 JS	0.82 J	0.13 J	< 0.126	< 0.020	0.75 J	0.12 J	0.52 J	0.082 J	< 1.3	< 0.20
1,1-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	0.45 J	0.11 J	0.77 JS	0.19 JS	0.57 J	0.14 J	< 0.081	< 0.020	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	2.1 S	0.54 S	< 0.79	< 0.20	< 0.079	< 0.020	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
1,2-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.0819	< 0.020	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
cis, 1,2-Dichloroethene	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	0.83 S	0.21 S	< 0.79	< 0.20	< 0.079	< 0.020	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethylene (PCE)	2.1	0.31	< 1.4	< 0.20	< 1.4	< 0.20	14	2	60 S	8.8 S	20	3	32.6	4.8	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 0.109	< 0.020	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	2.3	0.42	7 S	1.3 S	3.1	0.57	4.26	0.794	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

- General Notes**
- 1. For a complete list of analytes see the laboratory data sheets.
  - 2. ug/m<sup>3</sup> = micrograms per cubic meter.
  - 3. ppbV = parts per billion by volume.
  - 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.

- Qualifying Notes**
- J The reported result is below the laboratory reporting limit and is estimated.
  - J+ The reported result is estimated.
  - L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
  - S The result is estimated due to Internal Standard recovery outside of the control limits.





Table 2-1  
Summary of Testing Results - Indoor Air Samples  
Capuano Center - 150 Glen Street  
Somerville, Massachusetts

Sample Location: Sample Name:  Sample Date: Collected By: Units:	Room 138 (continued)																	
	150-Glen-Rm 139 (Field Duplicate of 150-Glen-Rm 138)		150-Glen-Rm 138		150-Glen-Rm 139 (Field Duplicate of 150-Glen-Rm 138)		150-Glen-Rm 138		150-Glen-Rm 139 (Field Duplicate of 150-Glen-Rm 138)		150-Glen-Rm 138		150-Glen-Rm 139 (Field Duplicate of 150-Glen-Rm 138)		150-Glen-Rm 138		150-Glen-Rm 139 (Field Duplicate of 150-Glen-Rm 138)	
	3/8/2007 GEI		4/20/2007 GEI		4/20/2007 GEI		5/17/2007 GEI		5/17/2007 GEI		7/30/2007 GEI		7/30/2007 GEI		9/10/2007 GEI		9/10/2007 GEI	
	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV
Analyte																		
Volatile Organic Compounds (VOCs)																		
Carbon tetrachloride	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.61 J	0.097 J	0.69 J	0.11 J	0.69 J	0.11 J	0.69 J	0.11 J
1,1-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20
1,1-Dichloroethylene	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20
1,2-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20
cis, 1,2-Dichloroethene	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20
Tetrachloroethylene (PCE)	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	1.2 J	0.17 J	1.1 J	0.16 J	< 1.4 J+	< 0.20 J+	6.5	0.96
1,1,1-Trichloroethane	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20
Trichloroethylene (TCE)	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20

- General Notes**
- For a complete list of analytes see the laboratory data sheets.
  - ug/m<sup>3</sup> = micrograms per cubic meter.
  - ppbV = parts per billion by volume.
  - "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.

- Qualifying Notes**
- J The reported result is below the laboratory reporting limit and is estimated.
  - J+ The reported result is estimated.
  - L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
  - S The result is estimated due to Internal Standard recovery outside of the control limits.





Table 2-1  
Summary of Testing Results - Indoor Air Samples  
Capuano Center - 150 Glen Street  
Somerville, Massachusetts

Sample Location: Sample Name:  Sample Date: Collected By: Units:	Room 141												Room 142							
	150 Glen-Room 141		150-Glen-Rm 141		150-Glen-Rm 141		150-Glen-Rm 141		150-Glen-Rm 141		150-Glen-Rm 141		RM142		150 Glen-Room 142		150 Glen-Rm 142		150-Glen-Rm 142	
	1/6/2007 GEI		3/8/2007 GEI		4/20/2007 GEI		5/17/2007 GEI		7/30/2007 GEI		9/10/2007 GEI		1/2/2007 GEI		1/6/2007 GEI		2/7/2007 GEI		3/8/2007 GEI	
	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV
Analyte																				
Volatile Organic Compounds (VOCs)																				
Carbon tetrachloride	0.45 JS	0.071 JS	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3 J+	< 0.20 J+	0.75 J	0.12 J	< 1.3	< 0.20	0.52 JS	0.083 JS	0.82 J	0.13 J	< 1.3	< 0.20
1,1-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20	1.4	0.35	1.2 S	0.29 S	< 0.81	< 0.20	< 0.81	< 0.20
1,1-Dichloroethylene	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20	0.87	0.22	2.5 S	0.63 S	< 0.79	< 0.20	< 0.79	< 0.20
1,2-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
cis, 1,2-Dichloroethene	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethylene (PCE)	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4 J+	< 0.20 J+	< 1.4	< 0.20	28	4.1	45 S	6.6 S	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20	< 1.1	< 0.20	0.33 JS	0.061 JS	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20	3.7	0.69	5.4 S	1 S	< 1.1	< 0.20	< 1.1	< 0.20

General Notes

1.
- For a complete list of analytes see the laboratory data sheets.
2.
- ug/m<sup>3</sup> = micrograms per cubic meter.
3.
- ppbV = parts per billion by volume.
4.
- "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.

Qualifying Notes

- J
- The reported result is below the laboratory reporting limit and is estimated.
- J+
- The reported result is estimated.
- L
- The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- S
- The result is estimated due to Internal Standard recovery outside of the control limits.





Table 2-1  
Summary of Testing Results - Indoor Air Samples  
Capuano Center - 150 Glen Street  
Somerville, Massachusetts

Sample Location: Sample Name:  Sample Date: Collected By: Units:	Room 142 (continued)								Room 144				Room 145		Room 146					
	150-Glen-Rm 142		150-Glen-Rm 142		150-Glen-Rm 142		150-Glen-Rm 142		150 Glen-Room 144 (Accutest Duplicate)		150 Glen-Room 144 (Alpha Duplicate)		150 Glen-Room 145		150-Glen-Room 146A		150-Glen-Room 146B		150-Glen-Room 146C (Field Duplicate of 150-Glen-Room 146B) 12/28/2006 GEI	
	4/20/2007 GEI		5/17/2007 GEI		7/30/2007 GEI		9/10/2007 GEI		1/13/2007 GEI		1/13/2007 GEI		1/6/2007 GEI		12/27/2006 GEI		12/28/2006 GEI			
	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV
Analyte																				
Volatile Organic Compounds (VOCs)																				
Carbon tetrachloride	< 1.3	< 0.20	< 1.3	< 0.20	0.63 J	0.10 J	0.75 J	0.12 J	0.88 J	0.14 J	< 3.14	< 0.50	0.45 JS	0.071 JS	1.1 J	0.18 J	< 1.3	< 0.20	0.49 J	0.078 J
1,1-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 2.02	< 0.50	< 0.81	< 0.20	10	2.5	3.6	0.88	3.3	0.82
1,1-Dichloroethylene	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 1.98	< 0.50	< 0.79	< 0.20	7.9	2	4	1	3.9	0.99
1,2-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	1.0	0.25	< 0.81	< 0.20	< 0.81	< 0.20	<2.02	< 0.50	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
cis, 1,2-Dichloroethene	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 1.98	< 0.50	< 0.79	< 0.20	3.3	< 0.83	1.3	0.33	1.2	0.31
Tetrachloroethylene (PCE)	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	4.1	0.61	4.36	0.643	< 1.4	< 0.20	186	27.5	83.4	12.3	85.4	12.6
1,1,1-Trichloroethane	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 2.72	< 0.50	< 1.1	< 0.20	2.1	0.38	0.82 J	0.15 J	0.71 J	0.13 J
Trichloroethylene (TCE)	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	1.3	0.24	< 2.68	< 0.50	< 1.1	< 0.20	37	6.8	10	1.9	11	2.1

- General Notes**
- For a complete list of analytes see the laboratory data sheets.
  - ug/m<sup>3</sup> = micrograms per cubic meter.
  - ppbV = parts per billion by volume.
  - "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.

- Qualifying Notes**
- J The reported result is below the laboratory reporting limit and is estimated.
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- L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- S The result is estimated due to Internal Standard recovery outside of the control limits.





Table 2-1  
Summary of Testing Results - Indoor Air Samples  
Capuano Center - 150 Glen Street  
Somerville, Massachusetts

Sample Location: Sample Name:  Sample Date: Collected By: Units:	Room 146 (continued)															
	RM146		150-Glen-Room 146		150-Glen-Rm 146		150-Glen-Rm 146		150-Glen-Rm 146		150-Glen-Rm 146		150-Glen-Rm 146		150-Glen-Rm 146	
	1/2/2007		1/6/2007 GEI		2/7/2007 GEI		3/8/2007 GEI		4/20/2007 GEI		5/17/2007 GEI		7/30/2007 GEI		9/10/2007 GEI	
	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV
Analyte																
Volatile Organic Compounds (VOCs)																
Carbon tetrachloride	0.63 J	0.10 J	< 1.3	< 0.20	0.75 J	0.12 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.62 J	0.099 J	0.82 J	0.13 J
1,1-Dichloroethane	0.53 J	0.13 J	0.57 JS	0.14 JS	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20
1,1-Dichloroethylene	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20
1,2-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81 J+	< 0.20 J+	< 0.81	< 0.20
cis, 1,2-Dichloroethene	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79 J+	< 0.20 J+	< 0.79	< 0.20
Tetrachloroethylene (PCE)	11	1.6	26 S	3.8 S	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	1.0 J	0.15 J	< 1.4	< 0.20
1,1,1-Trichloroethane	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20
Trichloroethylene (TCE)	1.7	0.32	3 S	0.56 S	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1 J+	< 0.20 J+	< 1.1	< 0.20

General Notes

- For a complete list of analytes see the laboratory data sheets.
- ug/m<sup>3</sup> = micrograms per cubic meter.
- ppbV = parts per billion by volume.
- "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.

Qualifying Notes

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- S The result is estimated due to Internal Standard recovery outside of the control limits.















**Table 2-3**  
**QAPP Deviations**  
**Capuano Center – 150 Glen Street**  
**Somerville, Massachusetts**

Monitoring Date	Sample ID	Deviation from QAPP
2/7/2007	Indoor Air Samples: <ul style="list-style-type: none"> <li>• 150GlenRm126</li> <li>• 150GlenRm134</li> <li>• 150GlenRm138 (Field Duplicate 150GlenRm139)</li> <li>• 150GlenRm142</li> <li>• 150GlenRm146</li> </ul>	<ul style="list-style-type: none"> <li>• Photographs not taken at end of sample period.</li> </ul>
2/8/2007	Outdoor Air Samples <ul style="list-style-type: none"> <li>• 150GlenRoof</li> <li>• 150GlenEffluent</li> </ul> Sub-Slab Soil Vapor Samples <ul style="list-style-type: none"> <li>• 150GlenRm137A</li> <li>• 150GlenRm142A</li> <li>• 150GlenRm146A</li> </ul>	<ul style="list-style-type: none"> <li>• Photographs not taken at end of sample period.</li> </ul>
3/8/2007	Indoor Air Samples: <ul style="list-style-type: none"> <li>• 150GlenRm126</li> <li>• 150GlenRm138 (Field Duplicate 150GlenRm139)</li> <li>• 150GlenRm141</li> <li>• 150GlenRm142</li> <li>• 150GlenRm146</li> </ul> Outdoor Air Sample: <ul style="list-style-type: none"> <li>• 150GlenRoof</li> </ul>	<ul style="list-style-type: none"> <li>• Photographs not taken at end of sample period.</li> <li>• Trip blank not collected.</li> </ul>
4/20/2007	Indoor Air Samples: <ul style="list-style-type: none"> <li>• 150GlenRm126</li> <li>• 150GlenRm138 (Field Duplicate 150GlenRm139)</li> <li>• 150GlenRm141</li> <li>• 150GlenRm142</li> <li>• 150GlenRm146</li> </ul> Outdoor Air Sample: <ul style="list-style-type: none"> <li>• 150GlenRoof</li> </ul>	<ul style="list-style-type: none"> <li>• Photographs not taken at end of sample period.</li> <li>• Indoor temperature and pressures at sample locations not measured.</li> <li>• Height of air intake not measured.</li> <li>• Sampling in Room 126 ended early due to access restraints.</li> <li>• Trip blank not collected.</li> </ul>



**Table 2-3**  
**QAPP Deviations**  
 Capuano Center – 150 Glen Street  
 Somerville, Massachusetts

Monitoring Date	Sample ID	Deviation from QAPP
5/15/2007	Indoor Air Samples: <ul style="list-style-type: none"> <li>• 150GlenRm126</li> <li>• 150GlenRm138 (Field Duplicate 150GlenRm139)</li> <li>• 150GlenRm141</li> <li>• 150GlenRm142</li> <li>• 150GlenRm146</li> </ul> Outdoor Air Sample: <ul style="list-style-type: none"> <li>• 150GlenRoof</li> </ul>	<ul style="list-style-type: none"> <li>• Photographs not taken at end of sample period.</li> <li>• Trip blank not collected.</li> </ul>
7/30/2007	Indoor Air Samples: <ul style="list-style-type: none"> <li>• 150GlenRm126</li> <li>• 150GlenRm138 (Field Duplicate 150GlenRm139)</li> <li>• 150GlenRm141</li> <li>• 150GlenRm142</li> <li>• 150GlenRm146</li> </ul> Outdoor Air Sample: <ul style="list-style-type: none"> <li>• 150GlenRoof</li> </ul>	<ul style="list-style-type: none"> <li>• Photographs not taken at end of sample period.</li> <li>• Trip blank not collected.</li> </ul>
9/10/2007	Indoor Air Samples: <ul style="list-style-type: none"> <li>• 150GlenRm126</li> <li>• 150GlenRm138 (Field Duplicate 150GlenRm139)</li> <li>• 150GlenRm141</li> <li>• 150GlenRm142</li> <li>• 150GlenRm146</li> </ul> Outdoor Air Sample: <ul style="list-style-type: none"> <li>• 150GlenRoof</li> </ul>	<ul style="list-style-type: none"> <li>• Photographs not taken at end of sample period.</li> <li>• Trip blank not collected.</li> </ul>





Table 2-4

Summary of Meteorological Data During Air Sampling Events

Capuano Center - 150 Glen Street  
Somerville, Massachusetts

Sample Date and Location	Outside Temperature (°F):		Outside Barometric Pressure (in. Hg):		Prevailing Wind Direction:		General Weather Conditions:		Significant precipitation within 12 hours prior to sampling?
	Start	End	Start	End	Start	End	Start	End	
4/20/2007 Room 126 Room 138 Room 139 (duplicate) Room 141 Room 142 Room 146 Roof	57.7 57.7 57.7 57.7 57.7 57.7 57.7	59.3 59.3 59.3 59.3 59.3 59.3 59.3	30.14 30.14 30.14 30.14 30.14 30.14 30.14	30.14 30.14 30.14 30.14 30.14 30.14 30.14	Southeast Southeast Southeast Southeast Southeast Southeast Southeast	Southeast Southeast Southeast Southeast Southeast Southeast Southeast	sunny sunny sunny sunny sunny sunny sunny	sunny sunny sunny sunny sunny sunny sunny	No No No No No No No
5/17/2007 Room 126 Room 138 Room 139 (duplicate) Room 141 Room 142 Room 146 Roof	42 42 42 42 42 42 42	41 41 41 41 41 41 41	30.22 30.22 30.22 30.22 30.22 30.22 30.22	30.29 30.29 30.29 30.29 30.29 30.29 30.29	East East East East East East East	East East East East East East East	overcast overcast overcast overcast overcast overcast overcast	overcast overcast overcast overcast overcast overcast overcast	Yes Yes Yes Yes Yes Yes Yes
7/30/2007 Room 126 Room 138 Room 139 (duplicate) Room 141 Room 142 Room 146	75 75 75 75 75 75	72 72 72 72 72 72	29.93 29.93 29.93 29.93 29.93 29.93	29.94 29.94 29.94 29.94 29.94 29.94	East/Southeast East/Southeast East/Southeast East/Southeast East/Southeast East/Southeast	East/Northeast calm calm calm calm calm	overcast, drizzle overcast, drizzle overcast, drizzle overcast, drizzle overcast, drizzle overcast, drizzle	mostly cloudy mostly cloudy mostly cloudy mostly cloudy partly cloudy mostly cloudy	Yes Yes Yes Yes Yes Yes
8/13/2007 Roof	70	70	30.00	29.95	Southeast	Southeast	sunny, windy	sunny, windy	No
9/10/2007 Room 126 Room 139 (duplicate) Room 139 (duplicate) Room 141 Room 142 Room 146 Roof	66.9 66.9 66.9 66.9 66.9 66.9 66.9	63.6 63.6 63.6 63.6 63.6 63.6 63.6	30.02 30.02 30.02 30.02 30.02 30.02 30.02	30.03 30.03 30.02 30.03 30.03 30.03 30.03	East East East East East East East	Northeast Northeast Northeast Northeast Northeast Northeast Northeast	overcast overcast overcast overcast overcast overcast overcast	overcast overcast overcast overcast overcast overcast overcast	No No No No No No No

General Notes:

1. ° F = degrees Fahrenheit.
2. in. Hg. = inches of mercury.
3. Temperatures were measured in the field using a hand-held thermometer.
4. Barometric pressures were measured in the field with a Sensor Instrument Nimbus Trademark digital barometer.





**Table 2-5**  
**SSDS Diagnostic Test Results (Before Slab-Foundation Wall Joint Sealing)**  
 Capuano Center - 150 Glen Street  
 Somerville, Massachusetts

Monitoring Point	Pre-Test, HVAC - Positive pressure; Vacuum active under all classrooms; Vacuum strength normal		HVAC - Positive pressure; Vacuum active under Room 138 only; Vacuum strength normal <sup>2</sup>	HVAC - Positive pressure; Vacuum active beneath Room 138 only; Vacuum strength increased	HVAC - Negative Pressure; Vacuum active beneath Room 138 only; Vacuum strength increased	HVAC - Negative pressure; Vacuum active under all classrooms; vacuum strength normal	HVAC - Negative pressure; Vacuum active under all classrooms; Vacuum strength turned off at normal; Vacuum turned off at each extraction point for measurement
	Vacuum (in w.c.)	PID reading (ppb)	Vacuum (in.w.c.)	Vacuum (in.w.c.)	Vacuum (in.w.c.)	Vacuum (in. w.c.)	Vacuum (in. w.c.)
Interior							
122A	-0.007	NM <sup>1</sup>	-0.003	NM	NM	-0.007	NM
126A	0.000	545	0.000	NM	NM	0.000	NM
133A	0.000	12200	0.000	-0.003	0.000	0.000	NM
137A	0.000	4248	0.000	0.000	0.000	0.000	NM
142A	0.000	363	0.000	-0.005	0.000	0.000	NM
146A	-0.007	8659	-0.006	NM	NM	0.000	NM
Exterior							
122-1	NM	NM	NM	NM	NM	-0.140	NM
122-2	NM	NM	NM	NM	NM	-0.144	NM
122-3	NM	NM	NM	NM	NM	-0.140	0.000
126-1	NM	NM	0.009	NM	NM	-0.157	-0.027
126-2	NM	NM	0.005	NM	NM	-0.141	NM
126-3	NM	NM	0.018	NM	NM	-0.164	-0.222
134-1	NM	NM	0.022	0.025	-0.012	-0.220	-0.024
134-2	NM	NM	0.024	0.023	-0.027	-0.222	-0.067
134-3	NM	NM	0.023	0.023	-0.032	-0.217	-0.021
138-1	-0.214	NM	-0.212	-5.695	-5.762	-0.225	-0.016
138-2	-0.217	NM	-0.214	-5.711	-5.773	-0.227	-0.032
138-3	-0.215	NM	-0.213	-5.715	-5.775	-0.225	-0.011
142-1	NM	NM	0.017	0.017	-0.023	-0.157	-0.013
142-2	NM	NM	0.025	0.026	-0.013	-0.155	-0.036
142-3	NM	NM	0.013	0.015	-0.009	-0.151	-0.017
146-1	NM	NM	NM	0.015	NM	-0.141	-0.003
146-2	NM	NM	NM	0.029	NM	-0.139	-0.040
146-3	NM	NM	NM	0.028	NM	-0.139	-0.025

**General Notes:**

1. All readings collected with a Dwyer 75-000-FM digital manometer.
2. HVAC = Heating, Ventilation, and Air Conditioning.
3. NM = Not measured.
4. in. w.c. = inches of water column.
5. PID = Photoionization detector.
6. ppb = parts per billion.

**Footnotes:**

1. Reading was not taken because the monitoring point was filled with water and the moisture would damage the PID.
2. Opened extraction points 122-1, 122-2, 122-3, 146-1, 146-2, 146-3 to decrease vacuum strength beneath Room 138 to equal vacuum strength under normal operation conditions.



Table 2-6  
SSDS Diagnostic Test Results (After Slab-Foundation Wall Joint Sealing)  
Capuano Center - 150 Glen Street  
Somerville, Massachusetts

Monitoring Point	Pre-Test, no HVAC or Vacuum Alterations		Vacuum and Extraction Point Alterations <sup>2</sup> ; No HVAC Alterations	Vacuum and Extraction Point Alterations <sup>3</sup>	Vacuum and Extraction Point Alterations <sup>4</sup>	No Vacuum Alterations <sup>5</sup> ; HVAC Alterations <sup>4</sup> ; Extraction Point Alterations		No Vacuum, Extraction Point' or HVAC Alterations <sup>6</sup>
	Vacuum (in. w.c.)	PID reading (ppb)	Vacuum (in. w.c.)	Vacuum (in. w.c.)	Vacuum (in. w.c.)	Extraction Point OPEN: Vacuum (in. w.c.)	Extraction Point CLOSED: Vacuum (in. w.c.)	Vacuum (in. w.c.)
Interior								
122A	-0.031	122	-0.037	-0.034	-0.033	-0.030	-0.030	-0.030
126A	-0.003	59	0.000	0.000	0.000	0.000	0.000	-0.003
133A	-0.004	2374	0.000	0.000	0.000	0.000	0.000	0.000
137A	0.000	2878	0.000	0.000	-0.003	-0.003	0.000	0.000
142A	-0.006	64	0.000	0.000	0.000	0.000	-0.010	-0.003
146A	-0.011	112	-0.013	-0.003	-0.010	-0.009	-0.009	-0.010
Exterior								
122-1	-0.233	NM	NM	NM	NM	-0.250	-0.012	-0.221
122-2	-0.242	NM	NM	NM	NM	-0.255	-0.022	-0.242
122-3	-0.229	NM	NM	NM	NM	-0.247	-0.008	-0.233
126-1	-0.256	NM	NM	NM	NM	-0.271	-0.016	-0.263
126-2	-0.216	NM	0.006	-0.004	-0.01	-0.235	-0.012	-0.221
126-3	-0.273	NM	0.015	-0.005	-0.015	-0.287	-0.028	-0.196
134-1	-0.351	NM	0.012	-0.015	-0.023	-0.385	-0.029	-0.358
134-2	-0.366	NM	0.006	-0.009	-0.027	-0.377	-0.058	-0.369
134-3	-0.341	NM	0.008	-0.016	-0.02	-0.358	-0.062	-0.326
138-1	-0.364	NM	-0.399	-0.405	-0.417	-0.399	-6.977 *	-0.379
138-2	-0.371	NM	-0.412	-0.397	-0.422	-0.383	-6.986 *	-0.369
138-3	-0.478	NM	-0.396	-0.403	-0.41	-0.379	-6.986 *	-0.371
142-1	-0.276	NM	-0.011	-0.010	-0.024	-0.299	-0.042	-0.266
142-2	-0.268	NM	-0.009	-0.024	-0.031	-0.288	-0.034	-0.261
142-3	-0.253	NM	-0.006	-0.026	-0.019	-0.263	-0.033	-0.253
146-1	-0.240	NM	0.000	-0.019	-0.014	-0.269	-0.008	-0.235
146-2	-0.226	NM	NM	NM	NM	-0.247	-0.024	-0.256
146-3	-0.237	NM	NM	NM	NM	-0.264	-0.019	-0.247

General Notes:

1. All vacuum readings collected with a Dwyer 475-000-FM digital manometer.
2. HVAC = Heating, Ventilation, and Air Conditioning.
3. NM = Not measured.
4. in. w.c. = Inches of water column.
5. PID = Photoionization detector.
6. ppb = parts per billion.
7. \* = Vacuum is estimated because Dwyer 475-000-FM manometer is less sensitive above 1,000 inch of water column.

Footnotes:

1. Closed extraction points and opened dilution valve on blower, but vacuum did not decrease appreciably in Room 138. Opened extraction points 122-1, 122-2, 122-3, 146-1, and 146-2 to decrease vacuum beneath Room 138.
2. HVAC settings adjusted to "worst case scenario" i.e. negative pressure. Indoor air pressure was approximately -0.010, which was lower than during the previous diagnostic test.
3. HVAC settings re-adjusted to "worst case scenario" i.e. negative pressure. Indoor air pressure was approximately -0.020, which was consistent with the previous diagnostic test.
4. Blower dilution valve remained closed. Vacuum measurements collected with extraction points open and closed.
5. System was returned to it's original configuration: positive pressure, all extraction points open, dilution valve closed.





**Table 3-1**  
**List of Study Area Properties**  
**Residential and Commercial Properties**  
**Somerville, Massachusetts**

Property:	Building Description	Indoor Air Sampling Conducted:	Soil Vapor Sampling Conducted:	EPEM Recommended:	Air Purifier Installed:	EPEM Installed:
2 Alston Street	Multi-family Residential	No	No	No	No	No
6 Alston Street	Multi-family Residential	No	No	No	No	No
10 Alston Street <sup>1</sup>	Garage	No	No	No	No	No
12 Alston Street	Multi-family Residential	No	Yes	No	No	No
16-20 Alston Street	Multi-family Residential	Yes	Yes	Yes	Yes	No
30-40 Alston Street	Commercial	Yes	Yes	No	No	No
142 Cross Street	Commercial	No	Yes	No	No	No
6 Dell Street	Single-family Residential	Yes	No	No	No	No
9 Dell Street	Single-family Residential	Yes	No	No	No	No
10 Dell Street	Single-family Residential	Yes	No	No	No	No
14 Dell Street	Single-family Residential	Yes	No	No	No	No
16 Dell Street	Single-family Residential	Yes	No	No	No	No
22 Dell Street	Single-family Residential	Yes	No	No	No	No
74 Franklin Street	Multi-family Residential	Yes	Yes	No	No	No
76 Franklin Street	Single-family Residential	No	Yes	No	No	No
80 Franklin Street	Multi-family Residential	Yes	Yes	No	No	No
82 Franklin Street	Single-family Residential	No	Yes	No	No	No
86 Franklin Street	Multi-family Residential	Yes	Yes	No	No	No
91-93 Franklin Street	Multi-family Residential	Yes	Yes	Yes	Yes	No
95 Franklin Street	Single-family Residential	Yes	Yes	Yes	Yes	Yes
95R Franklin Street	Single-family Residential	Yes	Yes	Yes	Yes	Yes
97 Franklin Street	Single-family Residential	Yes	Yes	No	No	No
97R Franklin Street	Single-family Residential	Yes	Yes	No	No	No
99 Franklin Street	Multi-family Residential	Yes	Yes	No	No	No
152-154 Glen Street	Multi-family Residential	No	Yes	No	No	No
153-155 Glen Street	Multi-family Residential	No	Yes	No	No	No
156 Glen Street	Multi-family Residential	Yes	Yes	No	No	No
159 Glen Street	Single-family Residential	No	No	No	No	No
162-164 Glen Street	Multi-family Residential	Yes	Yes	Yes	No	No
163 Glen Street	Commercial	No	Yes	No	No	No
166-168 Glen Street	Multi-family Residential	Yes	Yes	Yes	No	No
2 Hadley Court #2a	Multi-family Residential	Yes	Yes	No	No	No
2 Hadley Court #2b	Multi-family Residential	Yes	Yes	No	No	No
2 Hadley Court #2c	Multi-family Residential	Yes	Yes	No	No	No
9 Knowlton Street	Multi-family Residential	Yes	Yes	Yes	Yes	No
12-14 Knowlton Street	Multi-family Residential	Yes	Yes	No	No	No
13 Knowlton Street	Multi-family Residential	No	Yes	Yes	No	No
17 Knowlton Street	Multi-family Residential	No	Yes	No	No	No
19 Knowlton Street	Multi-family Residential	Yes	Yes	No	No	No
23 Knowlton Street	Multi-family Residential	Yes	Yes	No	No	No
27 Knowlton Street	Multi-family Residential	Yes	Yes	No	No	No
29 Knowlton Street	Multi-family Residential	Yes	Yes	No	No	No
31-33 Knowlton Street	Multi-family Residential	Yes	Yes	Yes	Yes	Yes
32 Knowlton Street	Multi-family Residential	No	Yes	No	No	No
34 Knowlton Street <sup>1</sup>	Garage	No	No	No	No	No
35-37 Knowlton Street	Multi-family Residential	Yes	Yes	Yes	Yes	No
4 Morton Street	Multi-family Residential	No	Yes	Yes	Yes	No
6-8 Morton Street	Multi-family Residential	Yes	Yes	No	No	No
7 Morton Street	Multi-family Residential	Yes	Yes	No	No	No
10 Morton Street	Single-family Residential	Yes	Yes	No	No	No
11 Morton Street	Multi-family Residential	Yes	Yes	Yes	Yes	No
12 Morton Street	Multi-family Residential	No	Yes	Yes	Yes	No
13 Morton Street	Multi-family Residential	No	Yes	Yes	Yes	No
15 Morton Street	Multi-family Residential	No	Yes	No	No	No
18 Morton Street	Multi-family Residential	Yes	Yes	Yes	Yes	Yes
19-19A Morton Street	Multi-family Residential	Yes	Yes	No	No	No
21 Morton Street	Multi-family Residential	Yes	Yes	No	No	No





**Table 3-1**  
**List of Study Area Properties**  
**Residential and Commercial Properties**  
**Somerville, Massachusetts**

Property:	Building Description	Indoor Air Sampling Conducted:	Soil Vapor Sampling Conducted:	EPEM Recommended:	Air Purifier Installed:	EPEM Installed:
9 Tufts Street	Multi-family Residential	Yes	No	Yes	Yes	No
11-13 Tufts Street	Multi-family Residential	Yes	No	Yes	Yes	No
17 Tufts Street	Multi-family Residential	Yes	No	Yes	Yes	No
19 Tufts Street	Multi-family Residential	Yes	No	Yes	No	No
23 Tufts Street	Multi-family Residential	Yes	No	Yes	Yes	Yes
25 Tufts Street	Multi-family Residential	Yes	No	Yes	Yes	No
27 Tufts Street	Multi-family Residential	Yes	Yes	Yes	Yes	No
45-47 Tufts Street	Multi-family Residential	No	No	No	No	No
49 Tufts Street	Single-family Residential	Yes	Yes	Yes	No	No
51-51a Tufts Street	Multi-family Residential	No	No	No	No	No
53 Tufts Street	Multi-family Residential	No	Yes	No	No	No
60 Tufts Street	Multi-family Residential	No	Yes	(3)	No	(3)
60 Tufts Street, #4	Multi-family Residential	Yes	Yes	(3)	Yes	(3)
85 Washington Street	Commercial	No	Yes	No	No	No
91 Washington Street	Commercial	No	No	No	No	No
97 Washington Street	Commercial	Yes	Yes	No	No	No
103 Washington Street	Commercial	No	Yes	Yes	No	Yes
105-107 Washington Street	Multi-family Residential	No	Yes	Yes	Yes	No
111 Washington Street	Multi-family Residential	No	Yes	Yes	Yes	No
113 Washington Street	Commercial	No	No	No	No	No
117 Washington Street	Multi-family Residential	No	No	No	No	No
121 Washington Street	Commercial	No	Yes	No	No	No

**General Notes:**

1. Property contains non-commercial garage only. There is no living space.
2. EPEM = Exposure Path Elimination Measure.
3. A soil vapor extraction (SVE) system was installed at 50 Tufts Street, in part, to mitigate potential migration of soil to 60 Tufts Street.



**Table 3-2**  
**Summary of Soil Vapor Sampling**  
**Residential and Commercial Properties**  
**Somerville, Massachusetts**

Property	Installation Date	Number of Sample Points	Additional Response Action
12 Alston Street	4/19/2007	2	Indoor Air Sampling
16-20 Alston Street	6/26/2007	1	Indoor Air Sampling
30-40 Alston Street	3/8/2007	6	Indoor Air Sampling
142 Cross Street	4/18/2007	2	Resample Q4 2007
74 Franklin Street	7/2/2007	1	Indoor Air Sampling
76 Franklin Street	4/3/2007	1	Resample Q4 2007
80 Franklin Street	6/20/2007	1	Indoor Air Sampling
82 Franklin Street	3/26/2007	2	Resample Q4 2007
86 Franklin Street	4/25/2007	2	Indoor Air Sampling
91-93 Franklin Street	3/20/2007	2	EPEM <sup>(a)</sup>
95 Franklin Street	4/19/2007	2	EPEM <sup>(a)</sup>
95R Franklin Street	3/21/2007	2	EPEM <sup>(a)</sup>
97 Franklin Street	6/30/2007	2	Indoor Air Sampling
97R Franklin Street	4/27/2007	1	Indoor Air Sampling
99 Franklin Street	5/8/2007	2	Indoor Air Sampling
152-154 Glen Street <sup>(b)</sup>	2/28/2007	2	Resample Q4 2007
153-155 Glen Street	3/12/2007	2	Resample Q4 2007
156 Glen Street	3/15/2007	2	Indoor Air Sampling
162-164 Glen Street	6/7/2007	2	Resample Q4 2007
163 Glen Street	4/6/2007	1	Indoor Air Sampling
166-168 Glen Street #2	5/30/2007	2	Indoor Air Sampling
2 Hadley, Court #2a	6/1/2007	2	Indoor Air Sampling
2 Hadley, Court #2b	7/6/2007	1	Indoor Air Sampling
2 Hadley, Court #2c	6/8/2007	2	Indoor Air Sampling
9 Knowlton Street	2/28/2007	1	Indoor Air Sampling
12-14 Knowlton Street	3/26/2007	2	Indoor Air Sampling
13 Knowlton Street	6/4/2007	1	Indoor Air Sampling
17 Knowlton Street	6/22/2007	2	Indoor Air Sampling
19 Knowlton Street	6/21/2007	1	Indoor Air Sampling
23 Knowlton Street	2/28/2007	1	Indoor Air Sampling
27 Knowlton Street	3/9/2007	2	Indoor Air Sampling
29 Knowlton Street	3/22/2007	2	Indoor Air Sampling
31-33 Knowlton Street	3/5/2007	2	Indoor Air Sampling
32 Knowlton Street	5/16/2007	2	Indoor Air Sampling
35-37 Knowlton Street	3/19/2007	2	EPEM <sup>(a)</sup>





**Table 3-2**  
**Summary of Soil Vapor Sampling**  
**Residential and Commercial Properties**  
**Somerville, Massachusetts**

Property	Installation Date	Number of Sample Points	Additional Response Action
4 Morton Street	6/27/2007	2	EPEM <sup>(a)</sup>
6-8 Morton Street	4/20/2007	2	Indoor Air Sampling
7 Morton Street	5/8/2007	1	Indoor Air Sampling
10 Morton Street	5/9/2007	2	Indoor Air Sampling
11 Morton Street	3/21/2007	2	Indoor Air Sampling
12 Morton Street	5/29/2007	2	EPEM <sup>(a)</sup>
13 Morton Street	6/26/2007	2	EPEM <sup>(a)</sup>
15 Morton Street	5/14/2007	2	Indoor Air Sampling
18 Morton Street	3/19/2007	2	EPEM <sup>(a)</sup>
19-19A Morton Street	4/18/2007	2	Indoor Air Sampling
21 Morton Street	3/28/2007	2	Indoor Air Sampling
27 Tufts Street	3/9/2007	2	SSDS
49 Tufts Street	6/9/2007	1	Indoor Air Sampling
53 Tufts Street	5/9/2007	2	Resample Q4 2007
60 Tufts Street	4/4/2007	3	EPEM <sup>(a)</sup>
60 Tufts Street #4	4/4/2007	2	EPEM <sup>(a)</sup>
85 Washington Street	3/29/2007	2	Resample Q4 2007
97 Washington Street	4/23/2007	2	Indoor Air Sampling
103 Washington Street	5/8/2007	2	EPEM <sup>(a)</sup>
105-107 Washington Street	5/8/2007	2	EPEM <sup>(a)</sup>
111 Washington Street	6/20/2007	2	EPEM <sup>(a)</sup>
121 Washington Street	4/11/2007	1	Resample Q4 2007

**General Notes:**

1. EPEM = Exposure Path Elimination Measure.
2. Q4 = Fourth quarter (October, November, December).

**Footnotes:**

- (a) Whether and to what extent EPEMs are to be installed is dependent, in part, on DEP's pending reassessment of its previously published Unit Risk Factor (URF) for tetrachloroethylene (PCE), as well as the technical feasibility of such measures based on sub-slab soil and other site-specific conditions.
- (b) First sub-slab sampling point installed 2/28/07. Sample not submitted due to defective summa canister.





**Table 3-3**  
**Summary of Indoor Air Testing**  
**Residential and Commercial Properties**  
**Somerville, Massachusetts**

Property	Sample Date	Sampling Purpose	Additional Response Action
16-20 Alston Street	8/10/2007	Verify sub-slab testing results	Purifier and EPEM <sup>(a)</sup>
30-40 Alston Street	2/14/2007	Initial evaluation	Sub-Slab Soil Vapor Sampling
6 Dell Street	1/23/2007	Initial evaluation	No further actions necessary at this time
9 Dell Street	1/22/2007	Initial evaluation	No further actions necessary at this time
10 Dell Street	1/22/2007	Initial evaluation	No further actions necessary at this time
14 Dell Street	1/22/2007	Initial evaluation	No further actions necessary at this time
16 Dell Street	1/22/2007	Initial evaluation	No further actions necessary at this time
22 Dell Street	1/22/2007	Initial evaluation	No further actions necessary at this time
74 Franklin Street	9/19/2007	Verify sub-slab testing results	Resample Q4 2007
80 Franklin Street	9/17/2007	Verify sub-slab testing results	Resample Q1 2008
86 Franklin Street	6/5/2007	Verify sub-slab testing results	Resample Q4 2007
91-93 Franklin Street	2/14/2007	Initial evaluation	Sub-Slab Soil Vapor Sampling
95 Franklin Street	6/7/2007	Confirm effectiveness of SSDS	Additional EPEM <sup>(a)</sup>
95R Franklin Street	4/18/2007	Verify sub-slab testing results	Purifier and EPEM <sup>(a)</sup>
95R Franklin Street	6/5/2007	Confirm effectiveness of SSDS	Installed additional SSDS system and second extraction point
95R Franklin Street	8/23/2007	Confirm effectiveness of SSDS	Reinstalled Purifier as temporary measure
97 Franklin Street	9/29/2007	Verify sub-slab testing results	Resample Q1 2008
97R Franklin Street	6/28/2007	Verify sub-slab testing results	Resample Q4 2007
99 Franklin Street	6/25/2007	Verify sub-slab testing results	Resample Q4 2007
156 Glen Street	5/15/2007	Verify sub-slab testing results	Resample Q4 2007
162-164 Glen Street	8/13/2007	Verify sub-slab testing results	Purifier and EPEM <sup>(a)</sup>
166-168 Glen Street, #2	9/7/2007	Verify sub-slab testing results	Purifier and EPEM <sup>(a)</sup>
2 Hadley Court #2a	9/5/2007	Verify sub-slab testing results	Resample Q1 2008
2 Hadley Court #2b	9/10/2007	Verify sub-slab testing results	Resample Q1 2008
2 Hadley Court #2c	9/17/2007	Verify sub-slab testing results	Resample Q1 2008
9 Knowlton Street	5/21/2007	Verify sub-slab testing results	Purifier and EPEM <sup>(a)</sup>
13 Knowlton Street	8/28/2007	Verify sub-slab testing results	Purifier and EPEM <sup>(a)</sup>
12-14 Knowlton Street	6/14/2007	Verify sub-slab testing results	Resample Q4 2007
19 Knowlton Street	7/25/2007	Verify sub-slab testing results	Resample Q4 2007
23 Knowlton Street	4/23/2007	Verify sub-slab testing results	Resample Q4 2007
27 Knowlton Street	5/2/2007	Verify sub-slab testing results	Resample Q4 2007
29 Knowlton Street	6/22/2007	Verify sub-slab testing results	Resample Q4 2007
31-33 Knowlton Street	1/22/2007	Initial evaluation	Sub-Slab Soil Vapor Sampling
31-33 Knowlton Street	4/20/2007	Verify sub-slab testing results	Purifier and EPEM <sup>(a)</sup>
31-33 Knowlton Street	8/6/2007	Confirm effectiveness of SSDS	Mitigation Successful - Resample Q4 2007
35-37 Knowlton Street	1/23/2007	Initial evaluation	Sub-Slab Soil Vapor Sampling
6-8 Morton Street	6/18/2007	Verify sub-slab testing results	Resample Q4 2007
7 Morton Street	6/20/2007	Verify sub-slab testing results	Resample Q4 2007
10 Morton Street	8/10/2007	Verify sub-slab testing results	Resample Q4 2007
11 Morton Street	6/5/2007	Verify sub-slab testing results	Purifier and EPEM <sup>(a)</sup>
18 Morton Street	7/24/2007	Confirm effectiveness of SSDS	Mitigation Successful - Resample Q4 2007
19-19A Morton Street	7/2/2007	Verify sub-slab testing results	Resample Q4 2007
21 Morton Street	5/15/2007	Verify sub-slab testing results	Resample Q4 2007
9 Tufts Street	3/23/2006	Quarterly monitoring	Resample Q2 2006
9 Tufts Street	7/24/2006	Quarterly monitoring	Resample Q3 2006
9 Tufts Street	10/2/2006	Quarterly monitoring	Purifier and EPEM <sup>(a)</sup>
9 Tufts Street	12/15/2006	Quarterly monitoring	Owner refused EPEM
11-13 Tufts Street	3/24/2006	Quarterly monitoring	Resample Q2 2006
11-13 Tufts Street	6/29/2006	Quarterly monitoring	Resample Q3 2006
11-13 Tufts Street	9/28/2006	Quarterly monitoring	Purifier and EPEM <sup>(a)</sup>
11-13 Tufts Street	12/15/2006	Quarterly monitoring	Owner refused EPEM





**Table 3-3**  
**Summary of Indoor Air Testing**  
**Residential and Commercial Properties**  
**Somerville, Massachusetts**

Property	Sample Date	Sampling Purpose	Additional Response Action
17 Tufts Street	3/24/2006	Quarterly monitoring	Resample Q3 2006
17 Tufts Street	10/2/2006	Quarterly monitoring	Purifier and EPEM <sup>(a)</sup>
17 Tufts Street	12/18/2006	Quarterly monitoring	Owner refused EPEM
19 Tufts Street	3/23/2006	Quarterly monitoring	Resample Q2 2006
19 Tufts Street	6/29/2006	Quarterly monitoring	Resample Q3 2006
19 Tufts Street	10/10/2006	Quarterly monitoring	Purifier and EPEM <sup>(a)</sup>
19 Tufts Street	12/15/2006	Quarterly monitoring	Owner refused Purifier and EPEM
23 Tufts Street	3/24/2006	Quarterly monitoring	Resample Q2 2006
23 Tufts Street	6/28/2006	Quarterly monitoring	Resample Q3 2006
23 Tufts Street	8/3/2006	Quarterly monitoring	Resample Q4 2006
23 Tufts Street	10/2/2006	Quarterly monitoring	Purifier and EPEM <sup>(a)</sup>
23 Tufts Street	12/18/2006	Quarterly monitoring	Continued Monitoring
23 Tufts Street	5/26/2007	Confirm effectiveness of SSDS	Mitigation Successful - Resample Q4 2007
25 Tufts Street	3/23/2006	Quarterly monitoring	Resample Q2 2006
25 Tufts Street	8/1/2006	Quarterly monitoring	Resample Q3 2006
25 Tufts Street	10/2/2006	Quarterly monitoring	Purifier and EPEM <sup>(a)</sup>
25 Tufts Street	12/15/2006	Quarterly monitoring	Owner refused EPEM
27 Tufts Street	3/23/2006	Quarterly monitoring	Resample Q2 2006
27 Tufts Street	6/28/2006	Quarterly monitoring	Resample Q3 2006
27 Tufts Street	8/3/2006	Quarterly monitoring	Purifier and EPEM <sup>(a)</sup>
27 Tufts Street	9/28/2006	Quarterly monitoring	Resample Q4 2006
27 Tufts Street	12/18/2006	Quarterly monitoring	Purifier and EPEM <sup>(a)</sup>
49 Tufts Street	9/6/2007	Verify sub-slab testing results	Purifier and EPEM <sup>(a)</sup>
60 Tufts Street, #4	1/23/2007	Verify sub-slab testing results	Purifier Installed; SVE installed at 50 Tufts
97 Washington Street	6/14/2007	Verify sub-slab testing results	Resample Q4 2007

**General Notes:**

1. SSDS = Sub-Slab Depressurization System.
2. EPEM = Exposure Pathway Elimination Measure.
3. Samples were collected from the basement and first of each building except 99 Franklin Street and 18 Morton Street where samples were only collected in the basement.

**Footnotes:**

- (a) Whether and to what extent EPEMs are to be installed is dependent, in part, on DEP's pending reassessment of its previously published Unit Risk Factor (URF) for tetrachloroethylene (PCE), as well as the technical feasibility of such measures based on sub-slab soil and other site-specific conditions.





**Table 3-4a**  
**Summary of Meteorological Data During Soil Vapor Sampling Events**  
 Residential and Commercial Properties  
 Somerville, Massachusetts

Sample Location	Sample Date	Associated Sample ID	Outside Temperature (°F):		Outside Barometric Pressure (in. Hg):		Prevailing Wind Direction:		General Weather Conditions:	
			Start	End	Start	End	Start	End	Start	End
16-20 Alston Street	6/26/2007	SS1	89.2	89	30.2	30.17	West	West/Southwest	sunny	sunny
12 Alston Street	4/19/2007	SS1	50	50	29.95	29.97	South	still	mostly cloudy	mostly cloudy
12 Alston Street	4/19/2007	SS2	50	50	29.95	29.97	South	still	mostly cloudy	mostly cloudy
142 Cross Street	4/18/2007	SS1	NM	46.5	NM	29.88	NM	NM	NM	overcast
142 Cross Street	4/18/2007	SS2	NM	46.5	NM	29.88	NM	NM	NM	overcast
74 Franklin Street	7/2/2007	SS1	77.1	78.4	30.12	30.1	East	East	partly cloudy	partly cloudy
76 Franklin Street	4/3/2007	SS1	41.8	45.5	30.23	30.25	South	South	cool cloudy rain earlier	cool cloudy rain earlier
80 Franklin Street	6/20/2007	SS1	81.5	81.6	29.83	29.82	calm	calm	cloudy	partly sunny
86 Franklin Street	4/25/2007	SG1	63.1	65	30.09	30.08	still	still	overcast	overcast
86 Franklin Street	4/25/2007	SG2	63.1	65	30.09	30.08	still	still	overcast	overcast
95 Franklin Street	4/19/2007	SS1	52	53	29.95	29.97	South	South	Sunny	Sunny
95 Franklin Street	4/19/2007	SS2	52	53	29.95	29.97	South	South	Sunny	Sunny
97R Franklin Street	4/27/2007	SS1	52.1	51.5	29.93	29.9	East	East	Cloudy, sprinkles	Cloudy, sprinkles
97 Franklin Street	6/30/2007	SS1	78.6	79.7	30.01	29.99	East	East	sunny	sunny
97 Franklin Street	6/30/2007	SS2	78.6	79.7	30.01	29.99	East	East	sunny	sunny
99 Franklin Street	5/8/2007	SS1	94.1	89.7	30.16	30.1	calm	calm	sunny, 90's	sunny, 80's
99 Franklin Street	5/8/2007	SS2	94.1	89.7	30.16	30.1	calm	calm	sunny, 90's	sunny, 80's
162-164 Glen Street	6/7/2007	SS1	75.1	72.9	30.05	30.02	calm	calm	cloudy, cool 70's	cloudy, cool 70's
162-164 Glen Street	6/7/2007	SS2	75.1	72.9	30.05	30.02	calm	calm	sunny, cool 70's	sunny, cool 70's
163 Glen Street	4/6/2007	SS1	43.4	44.6	29.76	29.75	East	East	sunny breeze, cool	clear windy ~10-15 mph
166-168 Glen Street, #2	5/30/2007	SS1	71	67.6	30.17	30.17	North/Northwest	North/Northwest	overcast, breezy	overcast, breezy
166-168 Glen Street, #2	5/30/2007	SS2	70	67.6	30.17	30.17	North/Northwest	North/Northwest	overcast, breezy	overcast, breezy
2 Hadley Court #2b	7/6/2007	SS1	86	89.8	29.74	29.75	South	South	partly cloudy, 80's	partly cloudy
2 Hadley Court #2c	6/8/2007	SS1	81.1	81.7	30.03	30.02	still	still	sunny	sunny
2 Hadley Court #2c	6/8/2007	SS2	81.1	81.7	30.03	30.02	still	still	sunny	sunny
2 Hadley Court #2a	6/1/2007	SS1	72	74	29.91	29.91	East/Northeast	Northeast	partly sunny, hot, humid	partly sunny, hot, humid
2 Hadley Court #2a	6/1/2007	SS2	72	74	29.91	29.91	East/Northeast	Northeast	partly sunny, hot, humid	partly sunny, hot, humid
13 Knowlton Street	6/4/2007	SS1	61	61.8	29.51	29.45	North	North	heavy rain	heavy rain
17 Knowlton Street	6/22/2007	SS1	74.1	77.1	29.73	29.71	South	South	sunny	sunny
17 Knowlton Street	6/22/2007	SS2	74.1	77.1	29.73	29.71	South	South	sunny	sunny
19 Knowlton Street	4/5/2007	SS2	48	34	29.6	29.67	West/Northwest	West	Cloudy	Partly loudy
19 Knowlton Street	6/21/2007	SS2	81.8	81.8	29.8	29.76	Southeast	Southeast	sunny	sunny
32 Knowlton Street	5/16/2007	SS1	72.6	81.9	29.77	29.79	North	North	hazy	sunny, hazy
32 Knowlton Street	5/16/2007	SS2	72.6	81.9	29.77	29.79	North	North	hazy	sunny, hazy
4 Morton Street	6/27/2007	SS1	95	91	29.91	29.91	Southwest	Southwest	hot, sunny	hot, sunny
4 Morton Street	6/27/2007	SS2	95	91	29.91	29.91	Southwest	Southwest	hot, sunny	hot, sunny
6-8 Morton Street	4/20/2007	SS1	57.7	57.9	30.14	30.13	Southeast	Southeast	sunny	sunny
6-8 Morton Street	4/20/2007	SS2	57.7	57.9	30.14	30.13	Southeast	Southeast	sunny	sunny





**Table 3-4a**  
**Summary of Meteorological Data During Soil Vapor Sampling Events**  
 Residential and Commercial Properties  
 Somerville, Massachusetts

Sample Location	Sample Date	Associated Sample ID	Outside Temperature (°F):		Outside Barometric Pressure (in. Hg):		Prevailing Wind Direction:		General Weather Conditions:	
			Start	End	Start	End	Start	End	Start	End
12 Morton Street	5/29/2007	SS1	78.8	80.2	30.21	30.2	Northeast	Northeast	sunny, breezy	sunny, breezy
12 Morton Street	5/29/2007	SS2	78.8	NM	30.21	NM	NM	NM	sunny, breezy, 70's	hot, sunny
13 Morton Street	6/26/2007	SS1	98.6	98	30.13	30.13	East/Southeast	calm	hot, sunny	hot, sunny
13 Morton Street	6/26/2007	SS2	98.6	98	30.13	30.13	East/Southeast	calm	sunny, clear	sunny, clear
15 Morton Street	5/14/2007	SS1	71.9	74.4	30.27	30.25	calm	calm	sunny, clear	sunny, clear
15 Morton Street	5/14/2007	SS2	71.9	74.4	30.27	30.25	calm	calm	Drizzle	Drizzle
19-19A Morton Street	4/18/2007	SS1	46.5	40	29.88	29.82	NM	NM	Drizzle	Drizzle
19-19A Morton Street	4/18/2007	SS2	46.5	40	29.88	29.82	NM	NM	overcast, drizzle	overcast
49 Tufts Street	6/9/2007	SS1	62.9	64.1	29.98	29.99	North/Northeast	North/Northeast	sunny, clear	sunny, clear
53 Tufts Street	5/9/2007	SS1	85.4	93.5	30.09	30.02	calm	calm	sunny, clear	sunny, clear
53 Tufts Street	5/9/2007	SS2	85.4	93.5	30.09	30.02	calm	calm	cloudy, sprinkles	light wet snow sleet/rain
60 Tufts Street	4/4/2007	SS1	42.1	40.8	29.98	29.98	North	North	light snow/sleet/rain	more snow, wet windy
60 Tufts Street	4/4/2007	SS2	40.1	39.2	29.98	29.94	North	North	wind, wet snow	wind, wet snow
60 Tufts Street	4/4/2007	SS3	42.1	40.8	29.98	29.98	North	North	wet blowing snow	wet blowing snow
60 Tufts Street, #4	4/4/2007	SS1	38.9	37.6	29.94	29.92	North	North	wet blwing snow	wet blowing snow
60 Tufts Street, #4	4/4/2007	SS2	38.9	37.6	29.94	29.92	North	North	sunny, warm	sunny, warm
97 Washington Street	4/23/2007	SS1	89.2	90.1	30.08	30.06	East	East	sunny, warm	sunny, warm
97 Washington Street	4/23/2007	SS2	89.2	90.1	30.08	30.06	East	East	sunny, 90's	sunny, 90's
103 Washington Street	5/8/2007	SS1	94.1	89.7	30.16	30.1	calm	calm	sunny, 80's	sunny, 80's
103 Washington Street	5/8/2007	SS2	89.7	88.7	30.1	30.09	calm	calm	sunny	sunny
105-107 Washington Street	5/8/2007	SS1	89.7	90.3	30.18	30.19	calm	calm	sunny	sunny
105-107 Washington Street	5/8/2007	SS2	89.7	90.3	30.18	30.19	calm	calm	overcast, rainy	overcast, drizzle
111 Washington Street	6/20/2007	SS1	75.9	77.1	29.86	29.84	Northwest	NW	NM	NM
111 Washington Street	6/20/2007	SS2	NM	NM	NM	NM	NM	NM	Sunny, mid-50s	Sunny, mid-50s
121 Washington Street	4/11/2007	SS1	54	56.1	30.19	30.19	North	North		

**General Notes:**

1. ° F = degrees Fahrenheit.
2. in. Hg = inches of mercury.
3. Temperatures were measured in the field using a hand-held thermometer.
4. Barometric pressures were measured in the field with a Sensor Instrument Nimbus Trademark digital barometer.
5. NM = Not Measured.





Table 3-4b  
Summary of Meteorological Data During Indoor Air Sampling Events  
Residential and Commercial Properties  
Somerville, Massachusetts

Sample Location	Sample Date	Associated Sample ID	Outside Temperature (°F):		Outside Barometric Pressure (in. Hg):		Inside Temperature (°F):		Inside Barometric Pressure (in. Hg):		Prevailing Wind Direction:		General Weather Conditions:		Significant precipitation within 12 hours prior to Sampling
			Start	End	Start	End	Start	End	Start	End	Start	End			
16-20 Alston Street	8/10/2007	B	65	64	29.96	30	77.9	~79	29.99	30.01	Southeast	calm	drizzle	No	
16-20 Alston Street	8/10/2007	1	65	64	29.96	30	81.6	~83	29.98	30	Southeast	calm	drizzle	No	
74 Franklin Street	9/19/2007	B	69.4	66.7	30.38	30.29	73.5	74.1	30.39	30.3	North/Northeast	East	sunny	sunny	No
74 Franklin Street	9/19/2007	1	69.4	66.7	30.38	30.29	74.6	78.4	30.38	30.3	North/Northeast	East	sunny	sunny	No
80 Franklin Street	9/17/2007	B	63.3	70.7	30.48	30.45	69.6	70.3	NM	NM	calm	calm	overcast	sunny	No
80 Franklin Street	9/17/2007	1	63.3	70.7	30.48	30.45	71.7	71	NM	NM	calm	calm	sunny	sunny	No
86 Franklin Street	6/5/2007	1	83.4	82.6	29.53	29.47	84.5	85	29.53	29.47	Northwest	North	breezy, sunny 80s	windy 80s	Yes
86 Franklin Street	6/5/2007	B	83.4	82.6	29.53	29.47	77.5	77.8	29.52	29.47	Northwest	North	breezy, sunny, 80s	windy 80s	No
95 Franklin Street	6/7/2007	B1	67.1	69.5	30.13	30.08	64.9	70.1	30.13	30.08	calm	calm	sunny, 60's	sunny, 60's	No
95 Franklin Street	6/7/2007	1	67.1	69.5	30.13	30.08	62	72.5	30.13	30.08	calm	calm	sunny, 60's	sunny, 60's	No
95 Franklin Street	6/7/2007	B2	67.1	69.5	30.13	30.08	64.9	70.1	30.13	30.08	calm	calm	sunny, 60's	sunny, 60's	No
95R Franklin Street	4/18/2007	B	46	44.4	29.86	29.9	63	60	29.88	29.92	NM	NM	Rainy	Rainy	Yes
95R Franklin Street	4/18/2007	1	46	44.4	29.86	29.9	68	72	29.91	29.87	NM	NM	Rainy	Rainy	Yes
95R Franklin Street	6/5/2007	1	69.6	85.4	29.55	29.48	70.5	79.6	29.56	29.48	Southwest	Southwest	humid, sunny	humid, sunny	Yes
95R Franklin Street	6/5/2007	CR	69.6	85.4	29.55	29.48	NA	NA	NA	NA	Southwest	Southwest	humid, sunny	humid, sunny	No
95R Franklin Street	8/23/2007	B	73.5	69.2	30.19	30.13	71.7	74.3	30.2	30.14	Calm	Calm	Overcast	Overcast	No
95R Franklin Street	8/23/2007	1	73.5	69.2	30.19	30.13	74.6	76.4	30.19	30.16	Calm	Calm	Overcast	Overcast	No
97 Franklin Street	9/29/2007	B	62.4	71.2	30.18	30.27	71.6	72.1	30.19	30.27	Northeast	East	sunny	sunny	No
97 Franklin Street	9/29/2007	1	62.4	71.2	30.18	30.27	72.3	72.5	30.18	30.26	Northeast	East	sunny	sunny	No
97R Franklin Street	6/28/2007	B	84.9	96.8	29.88	29.84	80.9	83.3	29.88	29.85	West/Southwest	West	overcast, windy	sunny, windy	No
97R Franklin Street	6/28/2007	1	84.9	96.8	29.88	29.84	85.4	91.2	29.88	29.84	West/Southwest	West	overcast, windy	sunny, windy	No
99 Franklin Street	6/25/2007	B	81.1	92.3	30.2	30.17	76.4	80.2	30.22	30.18	North	Northeast	sunny/hazy	sunny/hazy	No
156 Glen Street	5/15/2007	1	61.7	78.3	29.91	29.91	64	74.4	29.91	29.76	NM	NM	overcast	sunny	Yes
156 Glen Street	5/15/2007	B	61.7	78.3	29.91	29.76	63.9	72	29.92	29.77	NM	NM	overcast	sunny	Yes
162-164 Glen Street	8/13/2007	B	84	73	29.78	29.76	~78	~78	29.8	29.79	West	South	partly sunny	cloudy	No
162-164 Glen Street	8/13/2007	1	84	73	29.78	29.76	~75	~77	29.79	29.78	West	South	partly sunny	cloudy	No
166-168 Glen Street, #2	9/7/2007	1	93.7	92.1	30.09	30.05	79.6	77.9	30.1	30.05	North/Northeast	North/Northeast	partly cloudy, humid	sunny, humid	No
166-168 Glen Street, #2	9/7/2007	B	93.7	92.1	30.09	30.05	77.8	76.8	30.09	30.05	North/Northeast	North/Northeast	partly cloudy, humid	sunny, humid	No
2 Hadley Court #2a	9/5/2007	G	72.1	71.2	30.21	30.2	75.7	75.3	30.21	30.2	North	calm	sunny, breezy	sunny	No
2 Hadley Court #2a	9/5/2007	1	72.1	71.2	30.21	30.2	76.6	76.1	30.21	30.2	North	calm	sunny, breezy	sunny	No
2 Hadley Court #2b	9/10/2007	G	62.3	66.7	30.1	30.06	75.5	76.3	30.1	30.06	calm	calm	cloudy, cool	cloudy, cool	No
2 Hadley Court #2b	9/10/2007	1	62.3	66.7	30.1	30.06	76.1	75.9	30.1	30.06	calm	calm	cloudy, cool	cloudy, cool	No
2 Hadley Court #2c	9/17/2007	G	56.3	62.8	30.49	30.48	64	66.9	30.48	30.48	calm	Southeast	sunny	cloudy	No
2 Hadley Court #2c	9/17/2007	1	56.3	62.8	30.49	30.48	66.7	71	30.48	30.48	calm	Southwest	sunny	cloudy	No
9 Knowlton Street	5/21/2007	1	68.1	73	30.08	30.11	68	70.7	30.08	30.11	South	South	partly sunny, 60's	sunny, low 70's	No
9 Knowlton Street	5/21/2007	B	68.1	73	30.08	30.11	66.7	65.8	30.08	30.11	South	South	partly sunny, 60's	sunny, low 70's	No
12-14 Knowlton Street	6/14/2007	B	63.3	59.5	30.18	30.17	71.6	70.9	30.18	30.17	West	West	cloudy, cool	cloudy, cool	No
12-14 Knowlton Street	6/14/2007	1	63.3	59.5	30.18	30.17	73.3	72.6	30.17	30.17	West	west	cloudy, cool	cloudy, cool	No
13 Knowlton Street	8/28/2007	B	83	93.2	30.23	30.2	NM	NM	NM	NM	calm	calm	sunny	sunny	No
13 Knowlton Street	8/28/2007	1	83	93.2	30.23	30.2	NM	NM	NM	NM	calm	calm	sunny	sunny	No
19 Knowlton Street	7/25/2007	B	85	87	30.19	30.15	82.7	83.3	30.2	30.16	West	West/Southwest	partly cloudy	partly cloudy	No
19 Knowlton Street	7/25/2007	1	85	87	30.19	30.15	85.4	85.6	30.2	30.16	West	West/Southwest	partly cloudy	partly cloudy	No
23 Knowlton Street	4/23/2007	B	79.7	88.3	30.07	29.9	62	66.9	NM	29.92	NM	NM	Sunny	Sunny	No
23 Knowlton Street	4/23/2007	1	79.7	88.9	30.07	29.9	70	73.5	NM	29.9	NM	NM	Sunny	NM	No
27 Knowlton Street	5/2/2007	B	69.2	68.1	29.91	29.9	69.9	69	20.93	29.91	East	Southeast	Partly sunny	Partly sunny	Yes
27 Knowlton Street	5/2/2007	1	69.2	68.1	29.91	29.9	71.9	72.3	29.91	29.91	East	Southeast	Partly sunny	Partly sunny	Yes





Table 3-4b  
Summary of Meteorological Data During Indoor Air Sampling Events  
Residential and Commercial Properties  
Somerville, Massachusetts

Sample Location	Sample Date	Associated Sample ID	Outside Temperature (°F):		Outside Barometric Pressure (in. Hg):		Inside Temperature (°F):		Inside Barometric Pressure (in. Hg):		Prevailing Wind Direction:		General Weather Conditions:		Significant precipitation within 12 hours prior to Sampling
			Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	
29 Knowlton Street	6/22/2007	B	73.4	75	29.71	29.68	75.3	76.1	29.71	29.69	Southeast	Southeast	partly cloudy	partly cloudy	No
31-33 Knowlton Street	4/20/2007	1	57.7	59.3	30.13	30.14	68	74.1	NM	30.16	Southeast	Southeast	Sunny	Sunny	No
31-33 Knowlton Street	4/20/2007	B	57.7	59.3	30.13	30.14	60	63.6	NM	30.16	Southeast	Southeast	Sunny	sunny	No
31-33 Knowlton Street	8/6/2007	1	75	81.2	29.97	29.88	74	71.9	29.97	29.88	calm	calm	partly cloudy	mostly cloudy	No
31-33 Knowlton Street	8/6/2007	B	75	81.2	29.98	29.88	74.7	74.3	29.98	29.88	calm	calm	partly cloudy	mostly cloudy	No
6-8 Morton Street	6/18/2007	1	75	82.9	30.06	30.04	78.4	80	30.06	30.07	West	West	sunny	partly cloudy	Yes
6-8 Morton Street	6/18/2007	B	75	82.4	30.06	30.07	71.2	73.4	30.07	30.05	West	West	sunny	partly cloudy	Yes
7 Morton Street	6/20/2007	B	79.5	81.6	29.84	29.82	75	78	29.85	29.83	NM	NM	overcast, rainy	partly sunny	Yes
7 Morton Street	6/20/2007	1	79.5	81.6	29.84	29.82	81.1	84.2	29.85	29.82	NM	NM	overcast, rainy	partly sunny	Yes
10 Morton Street	8/10/2007	B	70	70	30.01	29.96	75	75	30.02	29.97	calm	calm	cloudy, light rain	partly cloudy	No
10 Morton Street	8/10/2007	1	70	70	30.01	29.93	75	75	30.01	29.96	calm	calm	cloudy, light rain	partly cloudy	No
11 Morton Street	6/5/2007	1	86.7	NM	29.53	NM	84.5	NM	29.54	NM	West	NM	sunny, 80's	NM	Yes
11 Morton Street	6/5/2007	B	86.7	NM	29.53	NM	77	NM	29.54	NM	West	NM	sunny, 80's	NM	Yes
18 Morton Street	7/24/2007	B	82.5	79.4	30.06	30.09	77.5	78.5	30.07	30.09	NM	Northwest	sunny	clear	Yes
19-19A Morton Street	7/2/2007	1	71.6	77.6	30.14	30.1	75.9	76.2	30.14	30.1	Southeast	Southeast	partly cloudy	partly cloudy	No
19-19A Morton Street	7/2/2007	B	71.6	77.7	30.14	30.1	73.1	73.5	30.14	30.1	Southeast	Southeast	partly cloudy	partly cloudy	No
21 Morton Street	5/15/2007	B	68.4	81.5	29.84	NM	68.8	67.7	29.83	29.73	NM	NM	partly cloudy	sunny	Yes
21 Morton Street	5/15/2007	1	67.8	81.5	29.84	29.73	69.8	72.8	29.83	29.73	NM	NM	partly cloudy	sunny	Yes
23 Tufts Street	5/26/2007	1	85.2	85.5	30.03	30.02	81.5	77.2	30.03	30.02	Northwest	NM	Sun w/ haze	sunny, becoming overcast	No
23 Tufts Street	5/26/2007	B	85.2	NM	30.03	NM	76.4	75.7	30.04	30.03	Northwest	NM	Sun w/ haze	NM	No
49 Tufts Street	9/6/2007	1	68.5	81.5	30.38	30.3	71.2	77.3	30.38	30.3	North	North	partly cloudy	partly cloudy	No
49 Tufts Street	9/6/2007	B	68.5	81.5	30.38	30.3	69.2	71.9	30.39	30.32	North	North	partly cloudy	partly cloudy	No
97 Washington Street	6/14/2007	B	64.2	61.6	30.2	30.19	82.7	81.5	30.2	30.19	Southwest	Southwest	cloudy, cool	cloudy, cool	No
97 Washington Street	6/14/2007	1	64.2	61.6	30.2	30.19	73.9	78.4	30.19	30.19	Southwest	Southwest	cloudy, cool	cloudy, cool	No

General Notes:

1. ° F = degrees Fahrenheit.
2. in. Hg = inches of mercury.
3. Temperatures were measured in the field using a hand-held thermometer.
4. Barometric pressures were measured in the field with a Sensor Instrument Nimbus Trademark digital barometer.
5. NM = Not Measured.





**Table 3-5**  
**Summary of Temporary Mitigation Measures (Air Purifier Installation)**  
**Residential and Commercial Properties**  
**Somerville, Massachusetts**

<b>Property</b>	<b>Date Installed</b>
16-20 Alston Street	09/21/07
91-93 Franklin Street	04/21/07
95 Franklin Street	07/23/07
95r Franklin Street	04/17/07
166-168 Glen Street, #2	10/26/07
162-164 Glen Street	10/31/07
9 Knowlton Street	06/01/07
31-33 Knowlton Street	05/11/07
35-37 Knowlton Street	03/15/07
4 Morton Street	08/23/07
11 Morton Street	07/23/07
12 Morton Street	07/23/07
13 Morton Street	09/25/07
18 Morton Street	05/02/07
9 Tufts Street	10/02/06
11-13 Tufts Street	10/02/06
17 Tufts Street	10/02/06
23 Tufts Street	10/02/06
25 Tufts Street	10/02/06
27 Tufts Street	09/28/06
60 Tufts Street, #4	03/06/07
105-107 Washington Street	09/11/07
111 Washington Street	07/26/07



**Table 3-6**  
**Summary of Permanent Mitigation Measures (SSDS)**  
**Residential and Commercial Properties**  
**Somerville, Massachusetts**

Property	Date Installed	Confirmatory Air Sampling (Yes/No)?
95 Franklin Street	5/30/2007	Yes
95R Franklin Street	5/30/2007	Yes
31-33 Knowlton Street	7/26/2007	Yes
18 Morton Street	7/9/2007	Yes
23 Tufts Street	5/7/2007	Yes
103 Washington Street	8/24/2007	No

**General Note:**

1. SSDS = Sub-slab depressurization system.





**Table 3-7**  
**Sub-Slab Depressurization System Details**  
**Residential and Commercial Properties**  
**Somerville, Massachusetts**

Property	Location of System	Date Installed	Number of Extraction Points	Approximate Fan Flow Rate (cfm)
23 Tufts Street	Basement	5/7/2007	1	30
95R Franklin Street	Basement	5/30/2007	2	30
	Crawl Space <sup>(a)</sup>	7/2/2007	NA	70
95 Franklin Street	Basement	5/30/2007	2	30
18 Morton Street	Basement	7/9/2007	5	55
31-33 Knowlton Street	Basement	7/26/2007	7	45
103 Washington Street	Lower Slab	8/24/2007	3	55
	Upper Slab	8/24/2007	1	70

**Notes:**

1. NA = Not Applicable.
2. cfm = cubic feet per minute.

**Footnotes:**

- (a) Crawlspace is equipped with an Ethylene Proylene Diene Monomer (EPDM) liner.





**Table 3-8a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		12 Alston Street	
Sample Name:		045162-12Alst-SS1	045162-12Alst-SS2
Sample Date:		4/19/2007	4/19/2007
Collected by:		GEI	GEI
Units:			
Analyte		µg/m <sup>3</sup>	ppbv
			µg/m <sup>3</sup>
Volatile Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		54	7.9
			27
			ppbv
			4

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.



**Table 3-8b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**12 Alston – No air sample**





Table 3-9a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:	16-20 Alston Street	
	Sample Name:	045162-20AL-SS1	
	Sample Date:	6/26/2007	
	Collected by:	GEI	
Units:		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		72.6	10.7
1,1,1-Trichloroethane		5.1	0.93

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





**Table 3-9b**  
**Summary of Indoor Air Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

Sample Location:		16-20 Alston Street		
Sample Name:		045162-20ALST-1		
Sample Date:		8/10/2007		
Collected by:		GEI		
Units:				
Analyte		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>
Volatile Organic Compounds (VOCs)				
Carbon tetrachloride		0.61 J	0.097 J	0.82 J
Tetrachloroethylene (PCE)		0.95 J	0.14 J	1.6
1,1,1-Trichloroethane		4.8	0.88	0.60 J
				ppbv
				0.13 J
				0.23
				0.11 J

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.



**Table 3-10a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

30-40 Alston Street												
Sample Location: Sample Name:  Sample Date:  Units:	045162-40 ALSTON-SS1 3/8/2007		045162-40 ALSTON-SS2 3/8/2007		045162-40 ALSTON-SS3 3/8/2007		045162-40 ALSTON-SS4 3/8/2007		045162-30 ALSTON-SS5 3/8/2007		045162-30 ALSTON-SS6 3/8/2007	
	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte												
	Volatile Organic Compounds (VOCs) Tetrachloroethylene (PCE) 1,1,1-Trichloroethane											
	2.8	0.42	<1.4	<0.20	2.4	0.36	9.5	1.4	5.0	0.74	1.7	0.25
	2.3	0.42	25	4.5	19	3.5	1.4	0.25	0.93 J	0.17 J	1.0 J	0.19 J

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-10b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		30-40 Alston Street	
Sample Name:		045162-32 Alston-1	
Sample Date:		2/14/07	
Collected By:		GEI	
Units:		045162-40 Alston-1	
		2/14/07	
		GEI	
Analyte		ug/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		7.5	1.1
Trichloroethylene (TCE)		0.70 J	0.13 J
		ug/m <sup>3</sup>	ppbv
		4.3	0.63
		< 1.1	< 0.20

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. ug/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

- J The reported result is below the laboratory reporting limit and is estimated.





Table 3-11a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

142 Cross Street					
Sample Location: Sample Name: Sample Date: Collected by: Units:		045162-142 Cro-SS1 4/18/07 GEI		045162-142 Cro-SS2 4/18/07 GEI	
		µg/m³	ppbv	µg/m³	ppbv
Analyte					
Volatile Organic Compounds (VOCs)					
Carbon tetrachloride		0.69 J 6.4 1.2	0.11 J 0.95 0.22	<1.3 3.5 1.7	<0.20 0.52 0.32
Tetrachloroethylene (PCE)					
1,1,1-Trichloroethane					

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.



**Table 3-11b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**142 Cross Street – No air sample**





**Table 3-12a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**6 Dell – No Sub-Slab Sampling**





**Table 3-12b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		6 Dell Street	
Sample Name:		045162-6Dell-B	
Sample Date:		1/23/07	
Collected By:		GEI	
Units:			
Analyte		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
Carbon tetrachloride		0.69 J	0.11 J
		µg/m <sup>3</sup>	ppbv
		0.60 J	0.95 J

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.



**Table 3-13a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**9 Dell – No Sub-Slab Sampling**





**Table 3-13b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location: Sample Name: Sample Date: Collected By: Units:		9 Dell Street			
		045162-9Dell-B 1/22/2007 GEI		045162-9Dell-C 1/22/2007 GEI	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte					
Volatile Organic Compounds (VOCs)					
Carbon tetrachloride		0.69 J	0.11 J	< 1.3	< 0.20
				µg/m <sup>3</sup>	ppbv
				µg/m <sup>3</sup>	ppbv
				0.69 J	0.11 J
				0.69 J	0.11 J

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-14a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**10 Dell – No Sub-Slab Sampling**



Table 3-14b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected By: Units:		10 Dell Street	
		045162-10Dell-B 1/23/07 GEI	045162-10Dell-1 1/23/07 GEI
Analyte		$\mu\text{g}/\text{m}^3$	ppbv
Volatile Organic Compounds (VOCs) Carbon tetrachloride			$\mu\text{g}/\text{m}^3$
		0.63 J	0.10 J
			ppbv
			$\mu\text{g}/\text{m}^3$
			<0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-15a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**14 Dell – No Sub-Slab Sampling**





**Table 3-15b**  
**Summary of Indoor Air Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

Sample Location:		14 Dell Street			
Sample Name:		045162-14Dell-B		045162-14Dell-1	
Sample Date:		1/22/07		1/22/07	
Collected By:		GEI		GEI	
Units:					
Analyte					
Volatile Organic Compounds (VOCs)					
Carbon tetrachloride		0.82 J		0.82 J	
		0.13 J		0.13 J	
		ppbv		ppbv	



**Table 3-16a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**16 Dell – No Sub-Slab Sampling**





Table 3-16b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected By: Units:		16 Dell Street	
		045162-16Dell-B 1/22/07 GEI	045162-16Dell-1 1/22/07 GEI
Analyte		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs) Carbon tetrachloride		0.63 J	0.10 J
		µg/m <sup>3</sup>	ppbv
		0.75 J	0.12 J

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-17a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**22 Dell – No Sub-Slab Sampling**



Table 3-17b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:			22 Dell Street	
Sample Name:			045162-22Dell-B	
Sample Date:			1/22/07	
Collected By:			GEI	
Units:				
Analyte				
Volatile Organic Compounds (VOCs)				
Tetrachloroethylene (PCE)				
Trichloroethylene (TCE)				

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-18a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		74 Franklin Street	
Sample Name:		045162-74FRANK-SS1	
Sample Date:		7/2/2007	
Collected by:		GEI	
Units:		µg/m³	ppbv
Analyte			
Volatile Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		2.8	0.41
1,1,1-Trichloroethane		0.60 J	0.11 J

**General Notes:**

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-18b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		74 Franklin Street		
Sample Name:		045162-74FRAN-B		
Sample Date:		9/19/2007		
Collected by:		GEI		
Units:		045162-74FRAN-1		
		9/19/2007		
		GEI		
		045162-74FRAN-1		
		9/19/2007		
		GEI		
		045162-74FRAN-1		
		9/19/2007		
		GEI		
		045162-74FRAN-1		
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		045162-74FRAN-1		
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		GEI		
		045162-74FRAN-1		
		9/19/2007		
		GEI		
		045162-74FRAN-1		



**Table 3-19a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		76 Franklin Street	
Sample Name:		045162-76 Fran-SS1	
Sample Date:		4/3/07	
Collected by:		GEI	
Units:		µg/m <sup>3</sup>	ppbv
Analyte			
Volatile Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		5.2	0.76
1,1,1-Trichloroethane		0.82 J	0.15 J

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-19b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**76 Franklin – No air sample**





Table 3-20a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		80 Franklin Street	
Sample Name:		045162-80FRANK-SS1	
Sample Date:		6/20/2007	
Collected by:		GEI	
Analyte	Units:	µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		1.7	0.25

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.



Table 3-20b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		80 Franklin Street	
Sample Name:		045162-80FRAN-B	045162-80FRAN-1
Sample Date:		9/17/2007	9/17/2007
Collected by:		GEI	GEI
Units:			
Analyte			
Volatile Organic Compounds (VOCs)			
Carbon tetrachloride		0.57 J	0.091 J
		µg/m <sup>3</sup>	µg/m <sup>3</sup>
			ppbv
			ppbv
		0.59 J	0.093 J

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-21a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		82 Franklin Street			
Sample Name:		045162-82 FRANK-SS1		045162-82 FRANK-SS2	
Sample Date:		3/26/2007		3/26/2007	
Units:					
Analyte		ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b>					
Carbon tetrachloride		0.60 J	0.096 J	<1.3	<0.20
Tetrachloroethylene (PCE)		1.2 J	0.17 J	<1.4	<0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-21b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**82 Franklin – No air sample**



Table 3-22a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		86 Franklin Street	
Sample Name:		045162-86 Frank-SG2	
Sample Date:		4/25/07	
Collected by:		GEI	
Analyte	Units:	µg/m³	ppbv
Volatile Organic Compounds (VOCs)			
Carbon tetrachloride		0.94 J	0.15 J
Tetrachloroethylene (PCE)		57	8.4
1,1,1-Trichloroethane		1.9	0.34
Trichloroethylene (TCE)		1.6	0.29

**General Notes:**

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m3 = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-22b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

<div>Sample Location: Sample Name: Sample Date: Collected by: Units:</div>		86 Franklin Street	
		045162-86 FRAN-1	
		6/5/2007 GEI	
Analyte		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
Carbon tetrachloride		0.88 J	0.14 J

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-23a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

<b>Analyte</b>	<b>Sample Location:</b>	<b>91-93 Franklin Street</b>	
	<b>Sample Name:</b>	<b>045162-93Frank-SG1A</b>	
	<b>Sample Date:</b>	<b>3/20/07</b>	
	<b>Collected By:</b>	<b>GEI</b>	
	<b>Units:</b>	<b>ug/m<sup>3</sup></b>	<b>ppbv</b>
<b>Volatile Organic Compounds (VOCs)</b>			
1,1-Dichloroethane		13	3.1
1,1,1-Trichloroethane		15	2.8
Tetrachloroethylene (PCE)		642	94.6
Trichloroethylene (TCE)		40	7.4

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m3 = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.



Table 3-23b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected By: Units:		91-93 Franklin Street		
		045162-93 Franklin-B 2/14/07 GEI		045162-93 Franklin-1 2/14/07 GEI
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>  ppbv
Analyte				
Volatile Organic Compounds (VOCs) Tetrachloroethylene (PCE)	3.5		0.52	0.95 J  0.14 J

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-24a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		95 Franklin Street	
Sample Name:		045162-95 Frank-SS2	
Sample Date:		4/19/07	
Collected By:		GEI	
Units:			
Analyte		ug/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b>			
1,1-Dichloroethane		133	32.9
1,1-Dichloroethylene		90.8	22.9
trans-1,2-Dichloroethylene		4.4	1.1
cis-1,2-Dichloroethylene		161	40.6
Tetrachloroethylene (PCE)		15500	2290
1,1,1-Trichloroethane		234	42.9
Trichloroethylene (TCE)		447	83.1
Vinyl chloride		1.3	0.50

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. ug/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-24b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**95 Franklin – No air sample**



Table 3-24c  
Summary of Confirmatory Indoor Air Testing Results  
Residences  
Somerville, Massachusetts

Sample Location:		95 Franklin Street	
Sample Name:		045162-95FRAN-B	045162-95FRAN-1
Sample Date:		6/7/2007	6/7/2007
Collected by:		GEI	GEI
Units:		µg/m <sup>3</sup>	ppbv
Analyte			µg/m <sup>3</sup>
Volatile Organic Compounds (VOCs)			
Carbon Tetrachloride		0.69 J 8.1	0.11 J 1.2
Tetrachloroethylene (PCE)			0.63 J 8.8
			0.10 J 1.3
			ppbv

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-25a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		95R Franklin Street	
Sample Name:		045162-95RFrank-SS2	
Sample Date:		3/21/07	
Collected by:		GEI	
Analyte	Units:	µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
1,1-Dichloroethane		793	196
1,1-Dichloroethylene		932	235
cis-1,2-Dichloroethylene		504	127
Tetrachloroethylene (PCE)		108000	15900
1,1,1-Trichloroethane		1300	239
Trichloroethylene (TCE)		4970	924

**General Notes:**

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.









**Table 3-25c**  
**Summary of Confirmatory Indoor Air Testing Results**  
**Residences**  
**Somerville, Massachusetts**

95R Franklin Street									
Sample Location:		045162-95RFRANK-CR 6/5/2007 GEI		045162-95RFRANK-1 6/5/2007 GEI		045162-95R Fran-B 8/23/07 GEI		045162-95RFRANK-1 8/23/2007 GEI	
Sample Name:		µg/m <sup>3</sup>		ppbv		µg/m <sup>3</sup>		ppbv	
Sample Date:		µg/m <sup>3</sup>		ppbv		µg/m <sup>3</sup>		ppbv	
Collected by:		µg/m <sup>3</sup>		ppbv		µg/m <sup>3</sup>		ppbv	
Units:		µg/m <sup>3</sup>		ppbv		µg/m <sup>3</sup>		ppbv	
Analyte									
Volatile Organic Compounds (VOCs)									
Carbon tetrachloride Tetrachloroethylene (PCE) 1,1,1-Trichloroethane Trichloroethylene (TCE)		< 6.3	< 1.0	0.88 J	0.14 J	0.69 J	0.11 J	0.69 J	0.11 J
		8.1	1.2	19	2.8	< 1.1	< 0.20	< 1.1	< 0.20
		< 5.5	< 1.0	< 1.1	< 0.20	3.5	0.52	2.3	0.34
		< 5.4	< 1.0	0.75 J	0.14 J	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-26a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

		97 Franklin Street			
Sample Location:		045162-97FRANK-SS1		045162-97FRANK-SS2	
Sample Name:		6/30/2007		6/30/2007	
Sample Date:		GEI		GEI	
Collected by:					
Units:					
Analyte		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)					
Carbon tetrachloride		0.82 J	0.13 J	< 0.53	< 0.20
Tetrachloroethylene (PCE)		34	5	86.8	12.8
1,1,1-Trichloroethane		< 1.1	< 0.20	1.5	0.27

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.









Table 3-27a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:		97R Franklin Street
	Sample Name:		045162-97R Frank-SS1
	Sample Date:		4/27/2007
	Collected by:		GEI
	Units:		ppbv
Volatile Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		60	8.9

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.



Table 3-27b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected by: Units:		97R Franklin Street	
		045162-97RFRANK-B 6/28/2007 GEI	045162-97RFRANK-1 6/28/2007 GEI
Analyte		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
Carbon tetrachloride		1.6	0.25
1,1,1-Trichloroethane		< 1.1	< 0.20
			µg/m <sup>3</sup>
			ppbv
			0.18 J
			0.077 J

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-28a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:	99 Franklin Street	
	Sample Name:	045162-99FRANK-SS1	
	Sample Date:	5/8/2007	
	Collected by:	GEI	
Units:		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
Carbon tetrachloride		0.63 J	0.10 J
cis-1,2-Dichloroethylene		14	3.5
Trichloroethylene (TCE)		42	7.9
Tetrachloroethylene (PCE)		309	45.6

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.



Table 3-28b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:		99 Franklin Street
	Sample Name:		045162-99FRANK-B
	Sample Date:		6/25/2007
	Collected by:		GEI
	Units:		ppbv
Volatile Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		1.4	0.21

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





Table 3-29a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:	152 - 154 Glen St	
	Sample Name:	045162-154 GLEN-SS1	
	Sample Date:	2/28/2007	
	Collected by:	GEI	
		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs) Tetrachloroethylene (PCE) 1,1,1-Trichloroethane		0.88 J	0.13 J
		0.65 J	0.12 J

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.



**Table 3-29b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**152 Glen – No air sample**





Table 3-30a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	153 - 155 Glen Street			
	Sample Location:		045162- 153 Glen-SS1	
	Sample Name:		045162- 153 GLEN-SS2	
	Sample Date:		3/12/2007	
Volatile Organic Compounds (VOCs)	Collected By:		GEI	
	Units:		GEI	
			3/12/2007	
			045162- 153 GLEN-SS2	
1,1-Dichloroethane			3/12/2007	
			GEI	
			045162- 153 GLEN-SS2	
			3/12/2007	
Tetrachloroethylene (PCE)			045162- 153 GLEN-SS2	
			3/12/2007	
			045162- 153 GLEN-SS2	
			3/12/2007	
1,1,1-Trichloroethane			045162- 153 GLEN-SS2	
			3/12/2007	
			045162- 153 GLEN-SS2	
			3/12/2007	

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.



**Table 3-30b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**153-155 Glen – No air sample**





Table 3-31a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		156 Glen Street	
Sample Name:		045162-156 GLEN-SS2	
Sample Date:		3/15/2007	
Collected by:		GEI	
Units:		µg/m <sup>3</sup>	ppbv
Analyte			
Volatile Organic Compounds (VOCs)			
1,1,1-Trichloroethane	10		1.9

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.



Table 3-31b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		156 Glen Street			
Sample Name:		045162-156GLEN-B		045162-156GLEN-1	
Sample Date:		9/29/07		9/29/07	
Collected by:		GEI		GEI	
Units:		µg/m <sup>3</sup>		µg/m <sup>3</sup>	
ppbv		ppbv		ppbv	
Analyte					
Volatile Organic Compounds (VOCs)					
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20

General Notes:

- 1. µg/m<sup>3</sup> = micrograms per cubic meter.
- 2. ppbv = parts per billion by volume.
- 3. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-32a

Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected by: Units:		164 Glen Street	
		045162-164GLEN-SS1 6/7/2007 GEI	045162-164GLEN-SS2 6/7/2007 GEI
Analyte		$\mu\text{g}/\text{m}^3$	ppbv
Volatile Organic Compounds (VOCs) Tetrachloroethylene (PCE) 1,1,1-Trichloroethane			$\mu\text{g}/\text{m}^3$
		33 1.0 J	4.8 0.19 J
			ppbv
		1.2 J < 1.1	0.17 J < 0.20

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.



Table 3-32b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	162-164 Glen Street			
	Sample Location:		045162-162GLEN-B	
	Sample Name:		8/13/2007	
	Sample Date:		GEI	
Volatile Organic Compounds (VOCs)	Collected by:		045162-162GLEN-1	
	Units:		8/13/2007	
			GEI	
			ppbv	
Carbon tetrachloride			μg/m <sup>3</sup>	
			ppbv	
			μg/m <sup>3</sup>	
			ppbv	
1,2-Dichloroethane			μg/m <sup>3</sup>	
			ppbv	
			μg/m <sup>3</sup>	
			ppbv	
Tetrachloroethylene (PCE)			μg/m <sup>3</sup>	
			ppbv	
			μg/m <sup>3</sup>	
			ppbv	
1,1,1-Trichloroethane			μg/m <sup>3</sup>	
			ppbv	
			μg/m <sup>3</sup>	
			ppbv	

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. μg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-33a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:	
	Sample Name:	163 Glen Street
	Sample Date:	045102-163 Glen-SS1
	Collected by:	3/28/07 GEI
Units:		ppbv
Volatile Organic Compounds (VOCs)		
Tetrachloroethylene (PCE)		
		1.4
		0.21

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.



**Table 3-33b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**163 Glen – No air sample**





**Table 3-34a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected by: Units:		166-168 Glen Street			
		045162-168GLEN-SS1 5/30/2007 GEI		045162-168GLEN-SS2 5/30/2007 GEI	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte					
<b>Volatiles Organic Compounds (VOCs)</b>					
Carbon tetrachloride		0.82 J	0.13 J	< 1.3	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20	0.52 J	0.13 J
Tetrachloroethylene (PCE)		10 G	1.5 G	271	39.9
1,1,1-Trichloroethane		0.55 J	0.10 J	7.6	1.4
Trichloroethylene (TCE)		0.86 J	0.16 J	9.7	1.8

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.
- G Duplicate precision outside control limits.



Table 3-34b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected by: Units:		166-168 Glen Street		
		045162-166GLEN-B 9/7/2007 GEI		045162-166GLEN-1 9/7/2007 GEI
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>  ppbv
Volatile Organic Compounds (VOCs)				
Carbon tetrachloride		0.75 J	0.12 J	0.88 J
Tetrachloroethylene (PCE)		4.1	0.61	5
1,1,1-Trichloroethane		0.65 J	0.12 J	0.47 J
				0.14 J
				0.74
				0.087 J

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-35a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location: Sample Name: Sample Date: Collected by: Units:		2 Hadley Court, #a	
		045162-2 HAD-SS1	045162-2 HAD-SS2
		6/1/2007 GEI	6/1/2007 GEI
Analyte		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs) Tetrachloroethylene (PCE) 1,1,1-Trichloroethane			µg/m <sup>3</sup>
			ppbv
		2.4	0.35
		1.1	0.2
			1.2 G
			0.82 J
			0.17 G
			0.15 J

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.
- G Duplicate precision outside control limits.



Table 3-35b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		2 Hadley Court #2a	
Sample Name:		045162-2A HAD-G	045162-2A HAD-1
Sample Date:		9/5/2007	9/5/2007
Collected by:		GEI	GEI
Units:			
		µg/m <sup>3</sup>	µg/m <sup>3</sup>
		ppbv	ppbv
Analyte			
Volatile Organic Compounds (VOCs)			
1,1,1-Trichloroethane		2.2	< 1.1
		0.4	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





Table 3-36a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected by: Units:	2 Hadley Court, #b		
	045162-2BHAD-SS1		
	7/6/2007		
	GEI		
Analyte  Volatile Organic Compounds (VOCs) Tetrachloroethylene (PCE)	μg/m <sup>3</sup>		ppbv
	2.5		0.37

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.



Table 3-36b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		2 Hadley Court #2b	
Sample Name:		045162-2HADB-G	
Sample Date:		9/10/2007	
Collected by:		GEI	
Analyte	Units:		
		µg/m <sup>3</sup>	µg/m <sup>3</sup>
Volatile Organic Compounds (VOCs)			
1,1,1-Trichloroethane		0.63 J	0.10 J
			0.69 J
			0.11 J

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-37a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location: Sample Name: Sample Date: Collected by: Units:		2 Hadley Court, #c			
		045162-2CHAD-SS1 6/8/2007 GEI		045162-2CHAD-SS2 6/8/2007 GEI	
Analyte		$\mu\text{g}/\text{m}^3$	ppbv	$\mu\text{g}/\text{m}^3$	ppbv
Volatile Organic Compounds (VOCs) Carbon tetrachloride Tetrachloroethylene (PCE)		< 1.3	< 0.20	0.69 J	0.11 J
		< 1.4	< 0.20	3.1	0.46

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.



Table 3-37b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		2 Hadley Court #2c	
Sample Name:		045162-2CHAD-1	
Sample Date:		9/17/2007	
Collected by:		GEI	
Units:			
Analyte			
Volatile Organic Compounds (VOCs)			
Carbon tetrachloride			
	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ppbv
	0.62 J	0.099 J	0.62 J
			0.098 J

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-38a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:	
	Sample Name:	9 Knowlton Street
	Sample Date:	045162-9 KNOW-SS1 2/28/2007 GEI
Units:		
Volatile Organic Compounds (VOCs)		
Carbon tetrachloride		ug/m <sup>3</sup>
Tetrachloroethylene (PCE)		ppbv
1,1,1-Trichloroethane		

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. ug/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.



**Table 3-38b**  
**Summary of Indoor Air Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

9 Knowlton Street				
Sample Location: Sample Name: Sample Date: Collected by: Units:		045162-9KNOW-B 5/21/2007 GEI		
		045162-9KNOW-1 5/21/2007 GEI		
		µg/m³	ppbv	µg/m³ ppbv
Analyte				
Volatile Organic Compounds (VOCs)				
1,1-Dichloroethylene		0.63 J	0.16 J	< 0.79 < 0.20
cis-1,2-Dichloroethylene		1.5	0.39	< 0.79 13.9 G
Tetrachloroethylene (PCE)		366 G	54.0 G	94.3 G 0.23
1,1,1-Trichloroethane		4.4	0.81	1.3 0.24
Trichloroethylene (TCE)		3.9	0.72	1.3

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

- G The result is estimated due to duplicate precision outside control limits.
- J The reported result is below the laboratory reporting limit and is estimated.





Table 3-39a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		12 Knowlton Street		12 Knowlton Street	
Sample Name:		045162-12 Know-SS1		045162-12 Know-SS2	
Sample Date:		3/26/07		3/26/07	
Collected by:		GEI		GEI	
Units:		µg/m <sup>3</sup>		µg/m <sup>3</sup>	
		ppbv		ppbv	
Analyte					
Volatile Organic Compounds (VOCs)					
Tetrachloroethylene (PCE)		14		6.5	
1,1,1-Trichloroethane		0.93 J		< 1.1	
		2.0		0.96	
		0.17 J		< 0.20	

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.



Table 3-39b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected by: Units:		12-14 Knowlton Street	
		045162-12-14KNOWB 6/14/2007 GEI	045162-12-14KNOW1 6/14/2007 GEI
		µg/m <sup>3</sup>	ppbv µg/m <sup>3</sup> ppbv
Analyte			
Volatile Organic Compounds (VOCs)			
Carbon tetrachloride		0.62 J	0.099 J
1,2-Dichloroethane		0.40 J	0.099 J
Tetrachloroethylene (PCE)		1.0 J, G	0.15 J, G
			< 1.3 < 0.81 < 1.4
			< 0.20 < 0.20 < 0.20

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

- G The result is estimated due to duplicate precision outside control limits.
- J The reported result is below the laboratory reporting limit and is estimated.





Table 3-40a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		13 Knowlton Street	
Sample Name:		045162-13 KNOW-SS1	
Sample Date:		6/4/2007	
Collected by:		GEI	
Units:		µg/m <sup>3</sup>	ppbv
Analyte			
Volatile Organic Compounds (VOCs)			
Carbon tetrachloride		0.82 J	0.13 J
Tetrachloroethylene (PCE)		4.5	0.67

**General Notes**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.



**Table 3-40b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**13 Knowlton – No air sample**





**Table 3-41a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		17 Knowlton Street			
Sample Name:		045162-17KNOW-SS1		045162-17KNOW-SS2	
Sample Date:		6/22/2007		6/22/2007	
Collected by:		GEI		GEI	
Units:					
Analyte		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)					
Tetrachloroethylene (PCE)		66	9.7	1.6	0.24
1,1,1-Trichloroethane		1.5	0.28	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.



**Table 3-41b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**17 Knowlton – No air sample**





## Summary of Sub-Slab Soil Vapor Testing Results

## Residential Properties

<b>Analyte</b> <b>Volatile Organic Compounds (VOCs)</b> Tetrachloroethylene (PCE)	<b>Sample Location:</b> <b>Sample Name:</b> <b>Sample Date:</b> <b>Collected by:</b> Units:	19 Knowlton Street 045162-19KNOW-SS2 6/21/2007 GEI	μg/m <sup>3</sup>  ppbv	   2.7

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.

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Table 3-42b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected by: Units:		19 Knowlton Street		
		045162-19KNOW-B 7/25/2007 GEI	045162-19KNOW-1 7/25/2007 GEI	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup> ppbv
Analyte				
Volatile Organic Compounds (VOCs)				
Carbon tetrachloride		0.59 J	0.094 J	0.60 J
1,2-Dichloroethane		< 0.81	< 0.20	0.61 J
Tetrachloroethylene (PCE)		1.3 J	0.19 J	1.2 J
				0.096 J
				0.15 J
				0.17 J

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-43a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:	23 Knowlton Street	
	Sample Name:	23Know-SS1	
	Sample Date:	2/28/2007	
	Collected by:	GEI	
Units:		µg/m³	ppbv
Volatile Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		4.1	0.61
1,1,1-Trichloroethane		1.4	0.26

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m³ = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.



Table 3-43b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

23 Knowlton Street				
Sample Location: Sample Name: Sample Date: Collected by: Units:	23 Know-B 4/23/2007 GEI	23 Know-1 4/23/2007 GEI		
Analyte	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs) Carbon tetrachloride Tetrachloroethylene (PCE) 1,1,1-Trichloroethane	< 1.3 1.2 J 0.87 J	< 0.20 0.18 J 0.16 J	1.0 J 1.3 J < 1.1	0.16 J 0.19 J < 0.20

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-44a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location: Sample Name: Sample Date: Collected By: Units:		27 Knowlton Street			
		045162-27KNOW-SS1		045162-27KNOW-SS2	
		3/9/2007 GEI		3/9/2007 GEI	
Analyte		ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b>					
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
2. ppbv = parts per billion by volume.
3. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.



Table 3-44b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: 27 Knowlton Street			
Sample Name: 045162-27KNOW-B		045162-27KNOW-I	
Sample Date: 5/2/2007		5/2/2007	
Collected by: GEI		GEI	
Units:			
Analyte	µg/m <sup>3</sup>	ppbv	ppbv
Volatile Organic Compounds (VOCs)			
Carbon tetrachloride	0.75 J	0.12 J	0.097 J
Tetrachloroethylene (PCE)	1.0 J	0.15 J	<0.20

General Notes”

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-45a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location: Sample Name: Sample Date: Collected by: Units:		29 Knowlton Street			
		045162-29 KNOW-SS1		045162-29KNOW-SS2	
		3/22/2007 GEI		3/22/2007 GEI	
Analyte		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b> Carbon tetrachloride Tetrachloroethylene (PCE)		< 1.3	< 0.20	0.94 J	0.15 J
		5.8	0.86	< 1.4	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.



Table 3-45b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		29 Knowlton Street			
Sample Name:		045162-29KNOW-B		045162-29KNOW-I	
Sample Date:		6/22/2007		6/22/2007	
Collected by:		GEI		GEI	
Units:					
Analyte	Volatile Organic Compounds (VOCs) Carbon tetrachloride	µg/m <sup>3</sup>		µg/m <sup>3</sup>	
		ppbv		ppbv	
		0.63 J		0.10 J	
		< 1.3		< 0.20	

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-46a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:	
	Sample Name:	31-33 Knowlton Street
	Sample Date:	045162-31Know-SS2
	Collected by:	4/20/07 GEI
Units:		ppbv
Volatile Organic Compounds (VOCs)		
Tetrachloroethylene (PCE)		
		2.6
		0.39

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.



**Table 3-46b**  
**Summary of Indoor Air Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

31-33 Knowlton Street									
Sample Location:		045162-33 KNOWTON-B 1/22/2007 GEI		045162-33 KNOWLTON-1 1/22/2007 GEI		045162-31 Know-1 4/20/07 GEI		045162-31 Know-B 4/20/07 GEI	
Sample Name:		µg/m <sup>3</sup>		ppbv		µg/m <sup>3</sup>		ppbv	
Sample Date:		µg/m <sup>3</sup>		ppbv		µg/m <sup>3</sup>		ppbv	
Collected by:		µg/m <sup>3</sup>		ppbv		µg/m <sup>3</sup>		ppbv	
Units:		µg/m <sup>3</sup>		ppbv		µg/m <sup>3</sup>		ppbv	
Analyte		µg/m <sup>3</sup>		ppbv		µg/m <sup>3</sup>		ppbv	
Volatile Organic Compounds (VOCs)		µg/m <sup>3</sup>		ppbv		µg/m <sup>3</sup>		ppbv	
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.63 J	0.10 J
Tetrachloroethylene (PCE)		3.0	0.44	< 1.4	< 0.2	1.4	0.20	33	4.8

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





Table 3-46c  
Summary of Confirmatory Indoor Air Testing Results  
Residences  
Somerville, Massachusetts

Sample Location:		31-33 Knowlton Street	
Sample Name:		045162-31KNOW1	
Sample Date:		8/6/2007	
Collected by:		GEI	
Units:		045162-31KNOWB 8/6/2007 GEI	
Analyte		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
Carbon tetrachloride		< 1.3	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20
		µg/m <sup>3</sup>	ppbv
		0.69 J < 1.4	0.11 J < 0.20

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.



Table 3-47a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:	32 Knowlton Street	
	Sample Name:	045162-32KNOW-SS2	
	Sample Date:	5/16/2007	
	Collected By:	GEI	
Units:		ug/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		< 1.4	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20

General Notes:

- 1. µg/m<sup>3</sup> = micrograms per cubic meter.
- 2. ppbv = parts per billion by volume.
- 3. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





**Table 3-47b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**32 Knowlton -- No air sample**



**Table 3-48a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

35-37 Knowlton Street				
Sample Location: Sample Name: Sample Date: Collected by: Units:		045162-35 Know-SS1 3/19/07 GEI		
		045162-35 Know-SS2 3/19/07 GEI		
Analyte		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>  ppbv
Volatile Organic Compounds (VOCs) 1,1-Dichloroethane 1,1-Dichloroethylene cis-1,2-Dichloroethylene Tetrachloroethylene (PCE) 1,1,1-Trichloroethane Trichloroethylene (TCE)		502	124	619
		749	189	1100
		249	62.9	390
		16400	2420	21600
		198	36.2	366
		3050	567	3740
				153
				277
				98.3
				3190
				67.0
				696

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





**Table 3-48b**  
**Summary of Indoor Air Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

Sample Location:		35-37 Knowlton Street	
Sample Name:		045162-37 Knowlton-B	
Sample Date:		1/23/07	
Collected by:		GEI	
Units:			
Analyte		µg/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b>			
Carbon tetrachloride		0.69 J	0.11 J
1,1-Dichloroethane		7.3	1.8
1,1-Dichloroethylene		6.7	1.7
cis-1,2-Dichloroethylene		3.4	0.86
Tetrachloroethylene (PCE)		163	24
1,1,1-Trichloroethane		2.0	0.37
Trichloroethylene (TCE)		20	3.8

**General Notes:**

- Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- µg/m<sup>3</sup> = micrograms per cubic meter.
- ppbv = parts per billion by volume.
- "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.



Table 3-49a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:	4 Morton Street	
	Sample Name:	045162-4MORT-SS2	
	Sample Date:	6/27/2007	
	Collected by:	GEI	
		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		38300	5650
1,1,1-Trichloroethane		401	73.5
Trichloroethylene (TCE)		169	31.4

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





**Table 3-49b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**4 Morton – No air sample**



**Table 3-50a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Analyte	6-8 Morton Street			
	Sample Location:			
	Sample Name:		045162-8Mort-SS1	
	Sample Date:		4/20/2007	
Volatile Organic Compounds (VOCs)	Collected by:		GEI	
	Units:			
Tetrachloroethylene (PCE)			µg/m <sup>3</sup>	ppbv
			16	2.3
			µg/m <sup>3</sup>	ppbv
			3.9	0.58

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





Table 3-50b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected by: Units:		6-8 Morton Street			
		045162-6MORT-B 6/18/2007 GEI		045162-6MORT-I 6/18/2007 GEI	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte					
Volatile Organic Compounds (VOCs)					
Carbon tetrachloride	< 1.3		< 0.20		0.11 J
Tetrachloroethylene (PCE)	1.4		0.2		< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.



Table 3-51a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:	7 Morton Street	
	Sample Name:	045162-7Mort-SS1	
	Sample Date:	5/8/2007	
	Collected by:	GEI	
Volatile Organic Compounds (VOCs) Tetrachloroethylene (PCE)	Units:	$\mu\text{g}/\text{m}^3$	ppbv
		6.4	0.94

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





**Table 3-51b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		7 Morton Street	
Sample Name:		045162-7MORT-B	
Sample Date:		6/20/2007	
Collected by:		GEI	
Units:		045162-7MORT-I 6/20/2007 GEI	
Analyte		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
Carbon tetrachloride		0.82 J < 1.4	0.13 J < 0.20
Tetrachloroethylene (PCE)			
		µg/m <sup>3</sup>	ppbv
		0.62 J 0.95 J	0.099 J 0.14 J

**General Notes:**

- Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- µg/m<sup>3</sup> = micrograms per cubic meter.
- ppbv = parts per billion by volume.
- "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.



**Table 3-52a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		10 Morton Street			
Sample Name:		045162-10MORT-SS1		045162-10MORT-SG1	
Sample Date:		5/9/2007		5/9/2007	
Collected by:		GEI		GEI	
Units:		µg/m <sup>3</sup>		ppbv	
Analyte		µg/m <sup>3</sup>		ppbv	
Volatile Organic Compounds (VOCs)					
Tetrachloroethylene (PCE)		< 1.4		< 0.20	
1,1,1-Trichloroethane		0.87 J		0.16 J	
				4	
				1.2	
				ppbv	
				0.59	
				0.22	

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-52b**  
**Summary of Indoor Air Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected by: Units:		10 Morton Street	
		045162-10MORT 1 8/10/2007 GEI	045162-10MORT B 8/10/2007 GEI
		µg/m <sup>3</sup>	µg/m <sup>3</sup>
Analyte		ppbv	ppbv
<b>Volatile Organic Compounds (VOCs)</b> Carbon tetrachloride Tetrachloroethylene (PCE) 1,1,1-Trichloroethane			
		0.63 J	< 1.3
		< 1.4	2.2
		< 1.1	4.3
		0.10 J	< 0.20
		< 0.20	0.33
		< 0.20	0.79

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.









Table 3-53b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected by: Units:		11 Morton Street			
		045162-11 MORT-B 6/5/2007 GEI		045162-11 MORT-1 6/5/2007 GEI	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte					
Volatile Organic Compounds (VOCs)					
Carbon Tetrachloride		0.63 J	0.10 J	0.61 J	0.097 J
Tetrachloroethylene (PCE)		3	0.44	8.1	1.2
Trichloroethylene (TCE)		< 1.1	< 0.20	4.5	0.84

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.



Table 3-54a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:	12 Morton Street	
	Sample Name:	045162-12MORT-SS1	
	Sample Date:	5/29/2007	
	Collected by:	GEI	
		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs) Tetrachloroethylene (PCE)		1010	149

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





**Table 3-54b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**12 Morton – No air sample**



Table 3-55a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:	13 Morton Street	
	Sample Name:	045162-13MORT-SS1	
	Sample Date:	6/26/2007	
	Collected by:	GEI	
		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
1,1-Dichloroethane		1.2	2.9
Tetrachloroethylene (PCE)		1690	249
1,1,1-Trichloroethane		19	3.5
Trichloroethylene (TCE)		8.6	1.6

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





**Table 3-55b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**13 Morton – No air sample**



**Table 3-56a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location		15 Morton Street	
Sample Name:		045162-15MORTSS1	
Sample Date:		5/14/07	
Collected By:		GEI	
Analyte	Units:	ug/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b>			
Chloroethane		< 0.53	< 0.20
Carbon tetrachloride		< 1.3	< 0.20
1,1-Dichloroethane		< 0.81	< 0.20
1,1-Dichloroethylene		< 0.79	< 0.20
1,2-Dichloroethane		< 0.81	< 0.20
trans, 1,1-Dichloroethylene		< 0.79	< 0.20
cis, 1,2-Dichloroethene		< 0.79	< 0.20
1,1,1-Trichloroethane		< 1.1	< 0.20
1,1,2,2-Tetrachloroethane		< 1.4	< 0.20
1,1,2-Trichloroethane		< 1.1	< 0.20
Tetrachloroethylene (PCE)		< 1.4	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20
Vinyl Chloride		< 0.51	< 0.20

**General Notes:**

1.    μg/m<sup>3</sup> = micrograms per cubic meter.
2.    ppbv = parts per billion by volume.
3.    "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
4.    Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





**Table 3-56b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**15 Morton – No air sample**



Table 3-57a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	18 Morton Street			
	Sample Location:			
	Sample Name:			
	Sample Date:			
		Units:		
Volatile Organic Compounds (VOCs)				
1,1-Dichloroethane				
1,1-Dichloroethylene				
Tetrachloroethylene (PCE)				
1,1,1-Trichloroethane				
Trichloroethylene (TCE)				

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-57b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**18 Morton – Confirmatory air sample only**



Table 3-57c  
Summary of Confirmatory Indoor Air Testing Results  
Residences  
Somerville, Massachusetts

Sample Location:		18 Morton Street	
Sample Name:		045162-18MORT-B	
Sample Date:		7/24/2007	
Collected by:		GEI	
Units:			
Analyte		µg/m <sup>3</sup>	ppbv
Volatlie Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		1.4	0.20

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.









Table 3-58b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected by: Units:		19-19A Morton Street	
		045162-19 MORT-B 7/3/07 GEI	045162-19 MORT-1 7/3/07 GEI
		µg/m <sup>3</sup>	µg/m <sup>3</sup>
Analyte		ppbv	ppbv
Volatile Organic Compounds (VOCs) Tetrachloroethylene (PCE) Trichloroethylene (TCE)		< 1.4 < 1.1	< 1.4 < 1.1
		< 0.20 < 0.20	< 0.20 < 0.20

General Notes:

1. µg/m<sup>3</sup> = micrograms per cubic meter.
2. ppbv = parts per billion by volume.
3. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





**Table 3-59a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

Analyte	21 Morton Street			
	Sample Location:		045162-21 Mort-SS1A	
	Sample Name:		045162-21 Mort-SS2A	
	Sample Date:		3/28/07	
	Collected by:		GEI	
	Units:		GEI	
Volatile Organic Compounds (VOCs) Tetrachloroethylene (PCE) 1,1,1-Trichloroethane	µg/m <sup>3</sup>		ppbv	
	µg/m <sup>3</sup>		µg/m <sup>3</sup>	
	ppbv		ppbv	
	3.1		14	
	0.65 J		154	
	0.45		2.0	
	0.12 J		28.2	

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.



## Table 3-59b

Sample Location: Sample Name: Sample Date: Collected by: Units:		21 Morton Street	
		045162-21 MORT-B 5/17/07 GEI	045162-21 MORT-1 5/17/07 GEI
Analyte		$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$
<b>Volatile Organic Compounds (VOCs)</b> Tetrachloroethylene (PCE) Trichloroethylene (TCE)		$< 1.4$ $< 1.1$	$< 1.4$ $< 1.1$
		ppbv	ppbv

**General Notes:**

1.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
2. ppbv = parts per billion by volume.
3. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





**Table 3-60a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**9 Tufts Street – No sub-slab sampling**



**Table 3-60b**  
**Summary of Indoor Air Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

Sample Location:		9 Tufts St., basement		9 Tufts St., 1st floor		9 Tufts St., basement		9 Tufts St., 1st floor, left apt.		9 Tufts St., 1st floor, right apt.	
Sample Name:		IA-6		IA-5		045160-9Tufts-BR		045160-9Tufts-1L		045160-9Tufts-1R	
Sample Date: Collected By:		2/23/05 Shaw		2/23/05 Shaw		3/23/06 GEI		3/23/06 GEI		3/23/06 GEI	
Units:		ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv
<b>Analyte</b>											
<b>Volatile Organic Compounds (VOCs)</b>											
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20
Chloroethane		< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20
Chloroform		0.54 J	0.11 J	1.2	0.25	1.3	0.26	0.78 J	0.16 J	< 0.98	< 0.20
Chloromethane		0.91	0.44	1.0	0.49	1.1 L	0.53 L	1.4 L	0.69 L	1.4 L	0.69 L
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Methylene chloride		0.56 J	0.16 J	0.59 J	0.17 J	< 1.9 M	< 0.55 M	< 1.8 M	< 0.52 M	< 1.3 M	< 0.36 M
Tetrachloroethylene (PCE)		1.3 J	0.19 J	1.8	0.27	2.4	0.35	< 1.4	< 0.20	0.95 J	0.14 J
1,1,1-Trichloroethane		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. ug/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.
- L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- M The reporting limit is elevated due to a detection of the analyte in a method blank sample, trip blank sample or both.





**Table 3-60b**  
**Summary of Indoor Air Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

Sample Location:		9 Tufts St., basement		9 Tufts St., 1st floor, left apt.		9 Tufts St., 1st floor, right apt.		9 Tufts St., basement		9 Tufts St., 1st floor, left apt.		9 Tufts St., 1st floor, right apt.	
Sample Name:		045160- 9Tufts-BR 7/24/06 GEI		045160- 9Tufts-1L 7/24/06 GEI		045160- 9Tufts-1R 7/24/06 GEI		045162- 9Tufts-BR 10/2/06 GEI		045162- 9Tufts-1L 10/2/06 GEI		045162- 9Tufts-1R 10/2/06 GEI	
Sample Date:													
Collected By:													
Units:													
Analyte		ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b>													
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20
Chloroethane		< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20
Chloroform		1.2	0.24	0.88 J	0.18 J	2.3	0.47	NT	NT	NT	NT	NT	NT
Chloromethane		0.95	0.46	1	0.49	1.1	0.55	NT	NT	NT	NT	NT	NT
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Methylene chloride		11	3.1	< 4.2 M	< 1.2 M	< 6.6 M	< 1.9 M	NT	NT	NT	NT	NT	NT
Tetrachloroethylene (PCE)		3.1	0.45	1.2 J	0.18 J	2	0.29	16	2.4	3.5	0.52	6.2	0.91
1,1,1-Trichloroethane		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.
6. NT = Not Tested.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.
- L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- M The reporting limit is elevated due to a detection of the analyte in a method blank sample, trip blank sample or both.





Table 3-60b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		9 Tufts St., basement	9 Tufts St., 1st floor, left apt.	9 Tufts St., 1st floor, right apt.
Sample Name:		045162- 9Tufts-BR	045162-9Tufts-1L	045162- 9Tufts-1R
Sample Date:		12/15/06	12/15/06	12/15/06
Collected By:		GEI	GEI	GEI
Units:		ug/m <sup>3</sup>	ug/m <sup>3</sup>	ppbv
Analyte		ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>
Volatile Organic Compounds (VOCs)				
Carbon tetrachloride		0.75 J	0.12 J	0.59 J
Chloroethane		< 0.53	< 0.20	< 0.53
Chloroform		NT	NT	NT
Chloromethane		NT	NT	NT
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81
Methylene chloride		NT	NT	NT
Tetrachloroethylene (PCE)		2.2 C+	0.32 C+	0.64 J
1,1,1-Trichloroethane		< 1.1	< 0.20	< 1.1
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.
6. NT = Not Tested/

Qualifying Note:

- J The reported result is below the laboratory reporting limit and is estimated.
- L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- M The reporting limit is elevated due to a detection of the analyte in a method blank sample, trip blank sample or both.





**Table 3-61a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**11-13 Tufts Street– No sub-slab sampling**



**Table 3-61b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		11 Tufts St., basement		11 Tufts St., 1st floor		11 Tufts St., basement		11 Tufts St., 1st floor	
Sample Name:		IA-2		IA-2D (duplicate)		IA-1		045160- 11/13Tufts-B	
Sample Date:		2/23/05		2/23/05		2/23/05		3/24/06	
Collected By:		Shaw		Shaw		Shaw		GEI	
Units:		ug/m <sup>3</sup>		ug/m <sup>3</sup>		ug/m <sup>3</sup>		ug/m <sup>3</sup>	
Analyte		ppbv		ppbv		ppbv		ppbv	
<b>Volatile Organic Compounds (VOCs)</b>									
Carbon tetrachloride		< 1.3		< 0.20		< 1.3		< 0.20	
Chloroethane		< 0.53		< 0.20		< 0.53		< 0.20	
Chloroform		< 0.98		< 0.20		2.8		< 0.20	
Chloromethane		0.81		0.39		0.99		1.4 L	
1,2-Dichloroethane		< 0.81		< 0.20		< 0.81		< 0.20	
Methylene chloride		1.0		0.29		0.80		< 1.3 M	
Tetrachloroethylene (PCE)		1.8		0.26		1.0 J		< 0.20	
1,1,1-Trichloroethane		< 1.1		< 0.20		< 1.1		< 0.20	
Trichloroethylene (TCE)		< 1.1		< 0.20		< 1.1		< 0.20	

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.
- L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- M The reporting limit is elevated due to a detection of the analyte in a method blank sample, trip blank sample or both.





Table 3-61b  
Summary of Indoor Air Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		11 Tufts St., basement		11 Tufts St., 1st floor		11 Tufts St., basement		11 Tufts St., 1st floor		11 Tufts St., basement		11 Tufts St., 1st floor	
Analyte	Units:	Sample Name:		Sample Date:		Sample Date:		Sample Date:		Sample Date:		Sample Date:	
		Collected By:		Collected By:		Collected By:		Collected By:		Collected By:		Collected By:	
		Collected By:		Collected By:		Collected By:		Collected By:		Collected By:		Collected By:	
Volatile Organic Compounds (VOCs)													
Carbon tetrachloride		0.69 J	0.11 J	0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.62 J	0.099 J
Chloroethane		< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20
Chloroform		< 0.98	< 0.20	1.5	0.30	NT	NT	NT	NT	NT	NT	NT	NT
Chloromethane		1.7	0.80	2.7	1.3	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloroethane		< 0.81	< 0.20	0.85	0.21	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Methylene chloride		< 5.2 M	< 1.5 M	< 2.7 M	< 0.77 M	NT	NT	NT	NT	NT	NT	NT	NT
Tetrachloroethylene (PCE)		2.4	0.36	1.8	0.27	0.88 J	0.13 J	0.88 J	0.13 J	2.2	0.33	< 1.4	< 0.20
1,1,1-Trichloroethane		< 1.1	< 0.20	0.71 J	0.13 J	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.
6. NT = Not Tested.

Qualifying Note:

- J The reported result is below the laboratory reporting limit and is estimated.
- L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- M The reporting limit is elevated due to a detection of the analyte in a method blank sample, trip blank sample or both.



**Table 3-62a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**17 Tufts Street – No sub-slab sampling**





**Table 3-62b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		17 Tufts St., basement		17 Tufts St., basement		17 Tufts St., 1st floor	
Sample Name:		IA-11		045160- 17Tufts-B		IA-12	
Sample Date: Collected By:		3/24/05 Shaw		3/24/06 GEI		3/24/06 Shaw	
Units:		ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv
Analyte							
Volatile Organic Compounds (VOCs)							
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20
Chloroethane		< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20
Chloroform		1.1	0.23	< 0.98	< 0.20	1.9	< 0.20
Chloromethane		0.97	0.47	1.2 L	0.58 L	1.1	0.8 L
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Methylene chloride		1.5	0.43	59.1 L	17 L	1.0	< 1.2 M
Tetrachloroethylene (PCE)		8.8	1.3	1.3 J	0.19 J	4.7	0.43
1,1,1-Trichloroethane		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		0.91 J	0.17 J	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.
6. NT = Not Tested.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.
- L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- M The reporting limit is elevated due to a detection of the analyte in a method blank sample, trip blank sample or both.



**Table 3-62b**  
**Summary of Indoor Air Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

Sample Location:		17 Tufts St., basement		17 Tufts St., basement		17 Tufts St., 1st floor		17 Tufts St., basement		17 Tufts St., 1st floor	
Sample Name:		045162-17Tufts-B		045162-17Tufts-C (duplicate)		045162-17Tufts-1		045162-17Tufts-C (duplicate)		045162-17Tufts-1	
Sample Date:		10/2/06		10/2/06		10/2/06		12/18/06		12/18/06	
Collected By:		GEI		GEI		GEI		GEI		GEI	
Units:		ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv
Analyte											
Volatile Organic Compounds (VOCs)											
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	0.52 J	0.083 J	< 1.3	< 0.20	0.57 J	0.09 J
Chloroethane		< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20
Chloroform		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloromethane		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Methylene chloride		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Tetrachloroethylene (PCE)		6.1	0.90	6.0	0.89	2	0.3	< 1.4	< 0.20	1.5	0.22
1,1,1-Trichloroethane		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		7.0	1.3	7.0	1.3	0.7 J	0.13 J	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.
6. NT = Not Tested.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-63a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**19 Tufts Street – No sub-slab sampling**



**Table 3-63b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		19 Tufts St., basement		19 Tufts St., basement		19 Tufts St., 1st floor		19 Tufts St., 1st floor	
Sample Name:		IA-13		045160- 19Tufts-B		IA-14		045160- 19Tufts-1	
Sample Date: Collected By:		3/24/05 Shaw		3/23/06 GEI		3/23/06 Shaw		3/23/06 GEI	
Units:									
Analyte		ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b>									
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20
Chloroethane		< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20
Chloroform		< 0.98	< 0.20	< 0.98	< 0.20	< 0.98	< 0.20	< 0.98	< 0.20
Chloromethane		0.85	0.41	1.8 L	0.88 L	1.8 L	0.85 L	21.7 L	10.5 L
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Methylene chloride		0.35 J	0.1 J	< 3.2 M	< 0.92 M	0.34 J	0.099 J	< 4.2 M	< 1.2 M
Tetrachloroethylene (PCE)		3.2	0.47	7.5	1.1	0.95 J	0.14 J	1.2 J	0.18 J
1,1,1-Trichloroethane		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.
6. NT = Not Tested.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.
- L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- M The reporting limit is elevated due to a detection of the analyte in a method blank sample, trip blank sample or both.





**Table 3-63b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		19 Tufts St., basement		19 Tufts St., 1st floor		19 Tufts St., 1st floor		19 Tufts St., 1st basement		19 Tufts St., 1st floor		19 Tufts St., basement	
Sample Name:		045160- 19Tufts-B		045160- 19Tufts-C (duplicate)		045160- 19Tufts-1		045160- 19Tufts-1		045160- 19Tufts-1		045162- 19Tufts-B	
Sample Date: Collected By:		6/29/06 GEI		6/29/06 GEI		6/29/06 GEI		6/29/06 GEI		6/29/06 GEI		10/10/06 GEI	
Analyte	Units:	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b>													
Carbon tetrachloride		0.69 J	0.11 J	0.69 J	0.11 J	0.69 J	0.11 J	0.69 J	0.11 J	0.63 J	0.10 J	< 1.3	< 0.20
Chloroethane		< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20
Chloroform		0.83 J	0.17 J	0.88 J	0.18 J	5.4	1.1	5.4	1.1	NT	NT	NT	NT
Chloromethane		3.1	1.5	< 0.41	< 0.20	2.3	1.1	2.3	1.1	NT	NT	NT	NT
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Methylene chloride		< 14 M	< 4 M	< 13 M	< 3.6 M	< 14 M	< 4.1 M	< 14 M	< 4.1 M	NT	NT	NT	NT
Tetrachloroethylene (PCE)		4.1	0.60	3.8	0.56	2.4	0.35	2.4	0.35	0.6 J	0.089 J	15	2.2
1,1,1-Trichloroethane		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		2.1	0.39	1.6	0.30	1.7	0.31	1.7	0.31	< 1.1	< 0.20	6.4	1.2

**General Notes**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.
6. NT = Not Tested.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.  
M The reporting limit is elevated due to a detection of the analyte in a method blank sample, trip blank sample or both.



**Table 3-63b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		19 Tufts St., basement		19 Tufts St., 1st floor		19 Tufts St., basement		19 Tufts St., basement		19 Tufts St., 1st floor	
Sample Name:  Sample Date: Collected By:  Units:	Analyte	045162-19Tufts-C (duplicate) 10/10/06 GEI		045162-19Tufts-1 10/10/06 GEI		045162-19Tufts-B 12/15/06 GEI		045162-19Tufts-C (duplicate) 12/15/06 GEI		045162-19Tufts-1 12/15/06 GEI	
		ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)											
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	0.59 J	0.093 J	< 1.3	< 0.20	0.63 J	0.10 J
Chloroethane		< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20
Chloroform		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloromethane		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Methylene chloride		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Tetrachloroethylene (PCE)		6.8	1.0	< 1.4	< 0.20	2.5	0.37	1.4	0.2	0.60 J	0.089 J
1,1,1-Trichloroethane		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		6.4	1.2	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.
6. NT = Not Tested;

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-64a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**23 Tufts Street – No sub-slab sampling**



**Table 3-64b**  
**Summary of Indoor Air Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

Sample Location:		23 Tufts St., basement		23 Tufts St., 1st floor		23 Tufts St., basement		23 Tufts St., 1st floor		23 Tufts St., basement		23 Tufts St., 1st floor	
Sample Name:		IA-8		IA-7		045160-23Tufts-B		045160-23Tufts-1		045160-23Tufts-B		045160-23Tufts-1	
Sample Date:		2/23/05		2/23/05		3/24/06		3/24/06		6/28/06		6/28/06	
Collected By:		Shaw		Shaw		GEI		GEI		GEI		GEI	
Units:													
Analyte		ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)													
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	0.94 J	0.15 J
Chloroethane		< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20
Chloroform		0.88 J	0.18 J	0.63 J	0.13 J	< 0.98	< 0.20	< 0.98	< 0.20	3.7	0.76	13	2.7
Chloromethane		1.1	0.54	0.97	0.47	1.6 L	0.79 L	1.7 L	0.82 L	1.9	0.91	1.6	0.78
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Methylene chloride		0.49 J	0.14 J	0.52 J	0.15 J	< 2.0 M	< 0.57 M	< 2.7 M	< 0.77 M	< 2.4 M	< 0.7 M	396 L	114 L
Tetrachloroethylene (PCE)		2.3	0.34	1.6	0.23	2.8	0.42	< 1.4	< 0.20	125	18.5	94.9	14.0
1,1,1-Trichloroethane		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	1.5	0.28	1.0 J	0.19 J
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	1.0 J	0.19 J	0.64 J	0.12 J

**General Notes:**

- Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- µg/m<sup>3</sup> = micrograms per cubic meter.
- ppbv = parts per billion by volume.
- "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.
- L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- M The reporting limit is elevated due to a detection of the analyte in a method blank sample, trip blank sample or both.





**Table 3-64b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		23 Tufts St., basement		23 Tufts St., 1st floor		23 Tufts St., basement		23 Tufts St., 1st floor		23 Tufts St., basement		23 Tufts St., 1st floor	
Sample Name:		045160- 23Tufts-B 8/3/06 GEI		045160- 23Tufts-1 8/3/06 GEI		045162- 23Tufts-B 10/2/06 GEI		045162- 23Tufts-1 10/2/06 GEI		045162- 23Tufts-B 12/18/06 GEI		045162- 23Tufts-1 12/18/06 GEI	
Sample Date:													
Collected By:													
Units:		ug/m <sup>3</sup>		ppbv		ug/m <sup>3</sup>		ppbv		ug/m <sup>3</sup>		ppbv	
Analyte													
Volatile Organic Compounds (VOCs)													
Carbon tetrachloride		0.69 J		0.11 J		0.69 J		0.11 J		0.58 J		0.69 J	
Chloroethane		< 0.53		< 0.20		< 0.53		< 0.20		< 0.53		< 0.53	
Chloroform		NT		NT		NT		NT		NT		NT	
Chloromethane		NT		NT		NT		NT		NT		NT	
1,2-Dichloroethane		< 0.81		< 0.20		< 0.81		< 0.20		< 0.81		< 0.20	
Methylene chloride		NT		NT		NT		NT		NT		NT	
Tetrachloroethylene (PCE)		10		1.5		9.5		1.4		46		54	
1,1,1-Trichloroethane		0.60 J		0.11 J		< 1.1		< 0.20		0.71 J		0.51 J	
Trichloroethylene (TCE)		< 1.1		< 0.20		< 1.1		< 0.20		0.5 J		0.54 J	

**General Notes**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.
6. NT = Not Tested.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.
- L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- M The reporting limit is elevated due to a detection of the analyte in a method blank sample, trip blank sample or both.



Table 3-64c  
Summary of Confirmatory Indoor Air Testing Results  
Residences  
Somerville, Massachusetts

Sample Location:		23 Tufts Street	
Sample Name:		045162-23TUFTS-B	045162-23TUFTS-1
Sample Date:		5/26/2007	5/26/2007
Collected by:		GEI	GEI
Units:			
		µg/m <sup>3</sup>	µg/m <sup>3</sup>
		ppbv	ppbv
Analyte			
Volatile Organic Compounds (VOCs)			
1,1,1-Trichloroethane		0.54 J	0.51 J
		0.099 J	0.093 J

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- 5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-65a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**25 Tufts Street – No sub-slab sampling**



**Table 3-65b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Analyte	Sample Location:		25 Tufts St., Basement		25 Tufts St., 1st floor		25 Tufts St., Basement		25 Tufts St., 1st floor		25 Tufts St., Basement	
	Sample Name:		IA-4		IA-3		045160- 25Tufts-B		045160- 25Tufts-1		045160- 25Tufts-B	
	Sample Date:		2/23/05		2/23/05		3/23/06		3/23/06		8/1/06	
	Collected By:		Shaw		Shaw		GEI		GEI		GEI	
		Units:	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b>												
Carbon tetrachloride			< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20
Chloroethane			< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20
Chloroform			< 0.98	< 0.20	2.0	0.4	< 0.98	< 0.20	< 0.98	< 0.20	NT	NT
Chloromethane			0.74	0.36	0.95	0.46	1.1 L	0.52 L	1.1 L	0.54 L	NT	NT
1,2-Dichloroethane			< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Methylene chloride			0.49 J	0.14 J	0.35 J	0.1 J	< 1.6 M	< 0.47 M	< 1.9 M	< 0.54 M	NT	NT
Tetrachloroethylene (PCE)			1.6	0.23	< 1.4	< 0.20	3.2	0.47	1.7	0.25	3.9	0.57
1,1,1-Trichloroethane			< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)			< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.
6. NT = Not Tested.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.
- L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- M The reporting limit is elevated due to a detection of the analyte in a method blank sample, trip blank sample, or both.





**Table 3-65b**  
**Summary of Indoor Air Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

Sample Location:		25 Tufts St., 1st floor		25 Tufts St., Basement		25 Tufts St., 1st floor		25 Tufts St., Basement		25 Tufts St., 1st floor	
Sample Name:		045160-25Tufts-1 8/1/06 GEI		045162-25Tufts-B 10/2/06 GEI		045162-25Tufts-1 10/2/06 GEI		045162-25Tufts-B 12/15/06 GEI		045162-25Tufts-1 12/15/06 GEI	
Sample Date:											
Collected By:											
Units:		ug/m <sup>3</sup>		ug/m <sup>3</sup>		ug/m <sup>3</sup>		ug/m <sup>3</sup>		ug/m <sup>3</sup>	
		ppbv		ppbv		ppbv		ppbv		ppbv	
Analyte											
Volatile Organic Compounds (VOCs)											
Carbon tetrachloride		< 1.3		< 1.3		< 1.3		0.56 J		0.63 J	
Chloroethane		< 0.53		< 0.53		< 0.53		< 0.53		< 0.53	
Chloroform		NT		NT		NT		NT		NT	
Chloromethane		NT		NT		NT		NT		NT	
1,2-Dichloroethane		< 0.81		< 0.81		< 0.81		< 0.81		< 0.81	
Methylene chloride		NT		NT		NT		NT		NT	
Tetrachloroethylene (PCE)		2		4.2		< 1.4		6.6		1.7	
1,1,1-Trichloroethane		< 1.1		< 1.1		< 1.1		< 1.1		< 1.1	
Trichloroethylene (TCE)		< 1.1		< 1.1		< 1.1		< 1.1		< 1.1	



**Table 3-66a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Analyte	27 Tufts Street			
	Sample Location:			
	Sample Name:		045162-27Tufts-SS1	
	Sample Date:		3/9/2007	
Volatile Organic Compounds (VOCs)	Units:		045162-27Tufts-SS2	
			3/9/2007	
			ug/m <sup>3</sup>	ppbv
			ug/m <sup>3</sup>	ppbv
Carbon tetrachloride	<1.3		0.69 J	0.11 J
Tetrachloroethylene (PCE)	180		41	6.1
1,1,1-Trichloroethane	3.9		0.50 J	0.091 J
Trichloroethylene (TCE)	2.8		<1.1	<0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-66b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		27 Tufts St., basement		27 Tufts St., 1st floor		27 Tufts St., basement		27 Tufts St., 1st floor	
Sample Name:		IA-10		IA-9		045160- 27Tufts-B 3/23/06 GEI		045160- 27Tufts-1 3/23/06 GEI	
Sample Date: Collected By:		2/23/05 Shaw		2/23/05 Shaw					
Units:		ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b>									
Carbon tetrachloride		< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20
Chloroethane		< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20
Chloroform		< 0.98	< 0.20	< 0.98	< 0.20	< 0.98	< 0.20	< 0.98	< 0.20
Chloromethane		0.6	0.29	1.2	0.59	2.9 L	1.4 L	110 L	53.5 L
1,2-Dichloroethane		< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Methylene chloride		0.49 J	0.14 J	0.52 J	0.15 J	< 4.2 M	< 1.2 M	< 2.0 M	< 0.59 M
Tetrachloroethylene (PCE)		< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20	< 1.4	< 0.20
1,1,1-Trichloroethane		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.
6. NT = Not Tested.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.
- L The reported result is estimated because the calculated relative percent difference (RPD) between a sample and the matrix duplicate was above the quality control limit specified in the Quality Assurance Project Plan (QAPP).
- M The reporting limit is elevated due to a detection of the analyte in a method blank sample, trip blank sample or both.



### Table 3-66b

Sample Location:		27 Tufts St., basement		27 Tufts St., 1st floor		27 Tufts St., basement		27 Tufts St., 1st floor	
Sample Name:		045160-27Tufts-B 6/28/06 GEI		045160-27Tufts-1 6/28/06 GEI		045160-27Tufts-B 8/3/06 GEI		045160-27Tufts-1 8/3/06 GEI	
Sample Date: Collected By:									
Units:									
Analyte	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>	ppbv	ug/m <sup>3</sup>
<b>Volatile Organic Compounds (VOCs)</b>									
Carbon tetrachloride	0.69 J	0.11 J	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3	< 0.20	< 1.3
Chloroethane	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53
Chloroform	< 0.98	< 0.20	< 0.98	< 0.20	< 0.98	< 0.20	NT	NT	NT
Chloromethane	1.3	0.65	1.6	0.79	NT	NT	NT	NT	NT
1,2-Dichloroethane	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81
Methylene chloride	< 2.1 M	< 0.6 M	< 2.2 M	< 0.63 M	NT	NT	NT	NT	NT
Tetrachloroethylene (PCE)	117	17.3	3.8	0.56	1.6	0.23	0.81 J	0.12 J	0.12 J
1,1,1-Trichloroethane	1.0 J	0.19 J	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1
Trichloroethylene (TCE)	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1	< 0.20	< 1.1

### General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.
6. NT = Not Tested.

### Qualifying Note:

- J** The reported result is below the laboratory reporting limit and is estimated.
- M** The reporting limit is elevated due to a detection of the analyte in a method blank sample, trip blank sample or both.





**Table 3-66b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location:		27 Tufts St., basement		27 Tufts St., 1st floor		27 Tufts St., basement		27 Tufts St., 1st floor	
Sample Name:		045162- 27Tufts-B 9/28/06 GEI		045162- 27Tufts-1 9/28/06 GEI		045162- 27Tufts-B 12/18/06 GEI		045162- 27Tufts-1 12/18/06 GEI	
Sample Date:									
Collected By:									
Units:		ug/m <sup>3</sup>		ppbv		ug/m <sup>3</sup>		ppbv	
Analyte									
Volatile Organic Compounds (VOCs)									
Carbon tetrachloride		< 1.3		<0.20		< 1.3		< 0.20	
Chloroethane		< 0.53		< 0.20		< 0.53		< 0.20	
Chloroform		NT		NT		NT		NT	
Chloromethane		NT		NT		NT		NT	
1,2-Dichloroethane		< 0.81		<0.20		< 0.81		< 0.20	
Methylene chloride		NT		NT		NT		NT	
Tetrachloroethylene (PCE)		38		5.6		12		1.8	
1,1,1-Trichloroethane		0.55 J		0.10 J		< 1.1		< 0.20	
Trichloroethylene (TCE)		< 1.1		< 0.20		< 1.1		< 0.20	



**Table 3-67a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

<div>Sample Location: Sample Name: Sample Date: Collected by: Units:</div>	49 Tufts Street		
	045162-49 TUFTS-SS1		
	6/9/2007		
	GEI		
Analyte	$\mu\text{g}/\text{m}^3$		ppbv
Volatile Organic Compounds (VOCs)  Carbon tetrachloride Tetrachloroethylene (PCE) 1,1,1-Trichloroethane	1.1 J		0.17 J
	43		6.4
	17		3.1

**General Notes:**

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-67b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location: Sample Name: Sample Date: Collected by: Units:		49 Tufts Street	
		045162-49TUFTS-B 9/6/2007 GEI	045162-49TUFTS-1 9/6/2007 GEI
Analyte		$\mu\text{g}/\text{m}^3$	ppbv
<b>Volatile Organic Compounds (VOCs)</b> Carbon tetrachloride 1,2-Dichloroethane Tetrachloroethylene (PCE) 1,1,1-Trichloroethane		$\mu\text{g}/\text{m}^3$ 0.94 J < 0.81 1.8 0.42 J	ppbv 0.15 J < 0.20 0.27 0.077 J
		$\mu\text{g}/\text{m}^3$	ppbv
		1.0 J 0.45 J 1.8 0.60 J	0.16 J 0.11 J 0.27 0.11 J

**General Notes:**

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
  2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
  3. ppbv = parts per billion by volume.
  4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
  5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

**Quantifying the effect of the laboratory reporting limit and is estimated.**



Table 3-68a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	53 Tufts Street			
	Sample Location:			
	Sample Name:		045162-53TUFTS-SS1	
	Sample Date: Collected by:		045162-53Tufts-SS2 5/9/2007 GEI	
Units:		µg/m <sup>3</sup>	ppbv	ppbv
Volatile Organic Compounds (VOCs)				
Tetrachloroethylene (PCE)		3.5	0.52	1.0 J 0.15 J

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-68b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**53 Tufts – No air sample**



**Table 3-69a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
 Residential Properties  
 Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected by: Units:		60 Tufts Street		60 Tufts Street		60 Tufts Street	
		045162-60Tufts-SS1		045162-60Tufts-SS2		045162-60Tufts-SS3	
		4/4/07		4/4/07		4/4/07	
		GEI		GEI		GEI	
Analyte	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	
Volatile Organic Compounds (VOCs)  Carbon tetrachloride 1,1-Dichloroethane 1,1-Dichloroethylene cis-1,2-Dichloroethylene Tetrachloroethylene (PCE) 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethylene (TCE)	5.7	0.90	< 13	< 2.0	< 13	< 2.0	
	23	5.6	< 8.1	< 2.0	5.3 J	1.3 J	
	2580	650	391	98.5	983	248	
	1.1	0.29	< 7.9	< 2.0	< 7.9	< 2.0	
	104	15.4	17	2.5	41	6.0	
	18300	3360	2970	544	6060	1110	
	1.2	0.22	< 11	< 2.0	< 11	< 2.0	
	159	29.5	28	5.2	109	20.2	

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
5. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





**Table 3-69b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**60 Tufts – No air sample**



Table 3-70a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected by:  Units:	60 Tufts Street		60 Tufts Street	
	045162-60Tufts-4-SS1 4/4/07 GEI		045162-60Tufts-4-SS2 4/4/07 GEI	
	µg/m³	ppbv	µg/m³	ppbv
Analyte  Volatile Organic Compounds (VOCs) Tetrachloroethylene (PCE) 1,1,1-Trichloroethane	136	20	29	4.3
	345	63.2	181	33.1

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





## Table 3-70b

Sample Location: 60 Tufts Street, Unit 4	
Sample Name: 045162-60Tufts-Unit4B	045162-60Tufts-Unit4 1/23/07 GEI
Sample Date: 1/23/07	GEI
Collected by:	
Units:	
<b>Analyte</b>	
<b>Volatile Organic Compounds (VOCs)</b>	
Carbon tetrachloride	0.63 J 4.4 14
Tetrachloroethylene (PCE)	0.10 J 0.65 2.6
1,1,1-Trichloroethane	0.75 J 5.8 11
	0.12 J 0.85 2.1

**General Notes:**

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
  2.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
  3. ppbv = parts per billion by volume.
  4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

### Qualifying Note:

**J** The reported result is below the laboratory reporting limit and is estimated.



Table 3-71a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		85 Washington Street	
Sample Name:		045162-85 Wash-SS2	
Sample Date:		3/29/07	
Collected by:		GEI	
Units:		µg/m <sup>3</sup>	ppbv
Analyte			
Volatile Organic Compounds (VOCs)			
1,2-Dichloroethane		0.53 J	0.13 J
Tetrachloroethylene (PCE)		1.0 J	0.15 J

**General Notes:**

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-71b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**85 Washington – No air sample**



Table 3-72a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		97 Washington Street		
Sample Name:		045162-97 WASH-SS1		045162-97WASH-SS2
Sample Date:		4/23/2007		4/23/2007
Collected by:		GEI		GEI
Units:		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>
				ppbv
Analyte				
	Volatile Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		2.3	0.34	1.8 J
				0.26 J

General Notes:

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-72b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

Sample Location: Sample Name: Sample Date: Collected by: Units:		97 Washington Street	
		045162-97WASHB	045162-97WASH1
		6/14/2007 GEI	6/14/2007 GEI
Analyte		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs) Carbon tetrachloride Tetrachloroethylene (PCE) 1,1,1-Trichloroethane			µg/m <sup>3</sup>
			ppbv
		0.69 J 1.4 G 0.76 J	0.11 J 0.20 G 0.14 J
			0.69 J 1.1 J, G 0.52 J
			0.11 J 0.16 J, G 0.096 J

**General Notes**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

- J The reported result is below the laboratory reporting limit and is estimated.
- G Duplicate precision outside control limits.



Table 3-73a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		103 Washington Street	
Sample Name:		045162-103WASH-SS1	
Sample Date:		5/8/2007	
Collected by:		GEI	
Analyte	Units:	µg/m <sup>3</sup>	ppbv
<b>Volatile Organic Compounds (VOCs)</b>			
Carbon tetrachloride		0.69 J	0.11 J
trans-1,2-dichloroethylene		0.95	0.24
cis-1,2-Dichloroethylene		15	3.7
Tetrachloroethylene (PCE)		2330	343
1,1,1-Trichloroethane		1.0 J	0.19 J
Trichloroethylene (TCE)		85.5	15.9

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-73b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**103 Washington – No air sample**



**Table 3-74a**  
**Summary of Sub-Slab Soil Vapor Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

105-107 Washington Street						
Sample Location: Sample Name: Sample Date: Collected by: Units:		045162-105WASH-SS1 5/8/2007 GEI			045162-105WASH-SS2 5/8/2007 GEI	
Analyte		µg/m³	ppbv	µg/m³	ppbv	
Volatile Organic Compounds (VOCs)						
Carbon tetrachloride		0.60 J	0.096 J	< 1.3	< 0.20	
1,1-Dichloroethane		< 0.81	< 0.20	3	0.75	
1,1-Dichloroethylene		< 0.79	< 0.20	0.99	0.25	
cis-1,2-Dichloroethylene		< 0.79	< 0.20	58.3	14.7	
Tetrachloroethylene (PCE)		40	5.9	479	70.6	
1,1,1-Trichloroethane		< 1.1	< 0.20	24	4.4	
Trichloroethylene (TCE)		0.91 J	0.17 J	53	9.8	
Vinyl Chloride		< 0.51	< 0.20	0.61	0.24	

**General Notes:**

- Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- µg/m<sup>3</sup> = micrograms per cubic meter.
- ppbv = parts per billion by volume.
- "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
- Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

**Qualifying Note:**

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-74b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**105-107 Washington – No air sample**



Table 3-75a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Sample Location:		111 Washington Street	
Sample Name:		045162-111WASH-SS1	
Sample Date:		6/20/2007	
Collected by:		GEI	
Units:		µg/m <sup>3</sup>	ppbv
Analyte	Volatile Organic Compounds (VOCs)		
	Tetrachloroethylene (PCE)		159
	1,1,1-Trichloroethane		3.3
	Trichloroethylene (TCE)		16.3

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.





**Table 3-75b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**111 Washington – No air sample**



Table 3-76a  
Summary of Sub-Slab Soil Vapor Testing Results  
Residential Properties  
Somerville, Massachusetts

Analyte	Sample Location:	121 Washington Street	
	Sample Name:	045162-121 Wash-SS1	
	Sample Date:	4/11/07	
	Collected by:	GEI	
Units:		µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)			
Tetrachloroethylene (PCE)		12	1.7
1,1,1-Trichloroethane		0.51 J	0.093 J

General Notes

- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the attached laboratory data sheets.
- 2. µg/m<sup>3</sup> = micrograms per cubic meter.
- 3. ppbv = parts per billion by volume.
- 4. Method = US EPA Method TO-15 with analyte list modified to include the chlorinated solvents and their common reductive dechlorination daughter products only.

Qualifying Note:

J The reported result is below the laboratory reporting limit and is estimated.





**Table 3-76b**  
**Summary of Indoor Air Testing Results**  
**Residential Properties**  
**Somerville, Massachusetts**

**121 Washington – No air sample**



Table 4-1  
Sub-Slab Depressurization System (SSDS) Monitoring Results  
50 Tufts Street  
Somerville, Massachusetts

Monitoring Point	Date: 4/30/2007		5/1/2007		5/3/2007		5/4/2007		5/5/2007		5/7/2007		5/10/2007		5/14/2007		5/18/2007	
	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)
West Header	-4.59	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	-4.42	112	--	--	-4.48	72.5
Center Header	-4.63	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	-4.53	168	--	--	-4.59	137.4
East Header	-1.96	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	-1.94	507	--	--	-1.92	292
North Header	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
South Header	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Primary Carbon Influent	-7.98	70	--	251	--	229	--	192	-0.94	169	--	201	-7.55	205	--	--	-8.18	153
Primary Carbon Effluent	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	<-10	2.1
System Discharge	6.3	0	--	0	--	0	--	0	6.41	0.8	--	0	4.5	1.4	--	--	5.85	2.8
EP-W1	--	--	--	--	--	--	--	--	--	--	--	--	-4.05	900	--	--	--	--
EP-W2	--	--	--	--	--	--	--	--	--	--	--	--	-3.35	186.9	--	--	--	--
EP-W3	--	--	--	--	--	--	--	--	--	--	--	--	-2.74	26.2	--	--	--	--
EP-W4	--	--	--	--	--	--	--	--	--	--	--	--	-2.06	8.2	--	--	--	--
EP-W5	--	--	--	--	--	--	--	--	--	--	--	--	-1.71	4.4	--	--	--	--
EP-W6	--	--	--	--	--	--	--	--	--	--	--	--	-1.79	13.3	--	--	--	--
EP-W7	--	--	--	--	--	--	--	--	--	--	--	--	-1.76	13.7	--	--	--	--
EP-W8	-1.94	--	--	--	--	--	--	--	--	--	--	--	-1.8	174	-1.6	-	--	--
EP-C1	--	--	--	--	--	--	--	--	--	--	--	--	-4.13	67.7	--	--	--	--
EP-C2	--	--	--	--	--	--	--	--	--	--	--	--	-4.13	440	--	--	--	--
EP-C3	--	--	--	--	--	--	--	--	--	--	--	--	-3.94	99	--	--	--	--
EP-C4	--	--	--	--	--	--	--	--	--	--	--	--	-3.73	2.16	--	--	--	--
EP-C5	--	--	--	--	--	--	--	--	--	--	--	--	-3.55	366	--	--	--	--
EP-C6	--	--	--	--	--	--	--	--	--	--	--	--	-3.31	10.7	--	--	--	--
EP-C7	--	--	--	--	--	--	--	--	--	--	--	--	-2.93	57.2	-2.64	-	--	--
EP-C8	-3.15	--	--	--	--	--	--	--	--	--	--	--	-3.13	69.9	--	--	--	--
EP-C9	-3.21	--	--	--	--	--	--	--	--	--	--	--	-3.17	162	--	--	--	--
EP-E1	--	--	--	--	--	--	--	--	--	--	--	--	-1.81	2.42	--	--	--	--
EP-E2	--	--	--	--	--	--	--	--	--	--	--	--	-1.8	72	--	--	--	--
EP-E3	--	--	--	--	--	--	--	--	--	--	--	--	-1.68	97.7	--	--	--	--
EP-E4	--	--	--	--	--	--	--	--	--	--	--	--	-1.71	23.4	--	--	--	--
EP-E5	-1.72	--	--	--	--	--	--	--	--	--	--	--	-1.71	4.4	-1.61	--	--	--
SS3	-0.29	--	--	--	--	--	--	--	--	--	--	--	-0.23	409	-0.255	--	--	--
SS4	-0.68	--	--	--	--	--	--	--	--	--	--	--	-0.58	875	-0.592	--	--	--
SS20	--	--	--	--	--	--	--	--	--	--	--	--	-0.12	--	-0.098	--	--	--
SS21	--	--	--	--	--	--	--	--	--	--	--	--	-0.52	--	-0.486	--	--	--
SS22	--	--	--	--	--	--	--	--	--	--	--	--	-0.54	--	-0.489	--	--	--
SS23	--	--	--	--	--	--	--	--	--	--	--	--	-0.31	--	-0.304	--	--	--
SS24	--	--	--	--	--	--	--	--	--	--	--	--	-0.38	--	-0.396	--	--	--
SS25	--	--	--	--	--	--	--	--	--	--	--	--	-0.81	--	-0.772	--	--	--
SS26	--	--	--	--	--	--	--	--	--	--	--	--	-0.51	--	-0.448	--	--	--
SS27	--	--	--	--	--	--	--	--	--	--	--	--	-0.18	--	-0.152	--	--	--

- General Notes:**
- 1. The first day of SSDS operation was April 30, 2007.
  - 2. VOC = volatile organic compound.
  - 3. ppm = parts per million.
  - 4. in. w.c. = inches water column.
  - 5. "--" = not measured.
  - 6. NI = Not Installed.
  - 7. The soil vapor extraction (SVE) system was started up on August 22, 2007.
  - \* Results obtained during SVE diagnostic test.





Table 4-1  
Sub-Slab Depressurization System (SSDS) Mon  
50 Tufts Street  
Somerville, Massachusetts

Monitoring Point	Date:		5/25/2007		6/1/2007		6/3/2007		6/8/2007		6/12/2007		6/19/2007		6/26/2007		7/3/2007		7/10/2007	
	Pressure	VOC	Pressure	VOC	Pressure	VOC	Pressure	VOC	Pressure	VOC	Pressure	VOC	Pressure	VOC	Pressure	VOC	Pressure	VOC	Pressure	VOC
	(in. w.c)	(ppm)	(in. w.c)	(ppm)	(in. w.c)	(ppm)	(in. w.c)	(ppm)	(in. w.c)	(ppm)	(in. w.c)	(ppm)	(in. w.c)	(ppm)	(in. w.c)	(ppm)	(in. w.c)	(ppm)	(in. w.c)	(ppm)
West Header	-4.37	53	-3.6	84.9	--	--	-4.85	56.5	-4.51	56.4	-4.55	63.7	-4.81	15.3	-4.65	73	-4.77	16.7		
Center Header	-4.42	230.1	-3.65	180.4	--	--	-4.89	112.9	-4.57	116.1	-4.59	127.1	-4.87	40.3	-4.84	157.3	-4.87	33.8		
East Header	-1.97	306	-1.64	593	--	--	-2.12	219.4	-1.98	296	-1.97	217.4	-2.02	64.8	-1.93	332	-1.98	66.8		
North Header	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		
South Header	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI		
Primary Carbon Influent	-7.57	126.7	-6.23	170.4	--	139	-8.57	98.6	-7.93	92.3	-8.01	100.5	-8.44	27.6	-8.45	138	-8.51	31.2		
Primary Carbon Effluent	<-10	40.3	--	--	--	43	18.05	140	--	--	--	--	10.31	0	10.4	4.6	10.33	13.7		
System Discharge	5.13	0.9	4.14	0	--	0	--	0	--	0.5	--	0.3	--	0	--	0	--	0		
EP-W1	--	--	--	--	--	--	--	--	-4.207	365	-4.134	296	-4.441	157.7	--	--	--	--		
EP-W2	--	--	--	--	--	--	--	--	-3.329	102.6	-3.323	111.9	-3.498	30.5	--	--	--	--		
EP-W3	--	--	--	--	--	--	--	--	-2.697	11.3	-2.641	15.1	-2.801	3.1	--	--	--	--		
EP-W4	--	--	--	--	--	--	--	--	-1.988	4.3	-1.937	5.8	-2.034	0.9	--	--	--	--		
EP-W5	--	--	--	--	--	--	--	--	-1.632	1.6	-1.568	2	-1.661	0	--	--	--	--		
EP-W6	--	--	--	--	--	--	--	--	-1.734	1.4	-1.678	1.8	-1.757	0	--	--	--	--		
EP-W7	--	--	--	--	--	--	--	--	-1.675	4.1	-1.627	4	-1.713	0.5	--	--	--	--		
EP-W8	--	--	--	--	--	--	--	--	-1.714	47.4	-1.669	53.4	-1.749	11.3	--	--	--	--		
EP-C1	--	--	--	--	--	--	--	--	-4.192	17.8	-4.191	23.2	-4.453	5.4	--	--	--	--		
EP-C2	--	--	--	--	--	--	--	--	-4.203	157.2	-4.22	140.7	-4.547	36.2	--	--	--	--		
EP-C3	--	--	--	--	--	--	--	--	-3.985	80.9	-3.987	102.4	-4.238	28.6	--	--	--	--		
EP-C4	--	--	--	--	--	--	--	--	-3.773	1653	-3.734	500	-3.994	273	--	--	--	--		
EP-C5	--	--	--	--	--	--	--	--	-3.565	180.4	-3.55	177.9	-3.79	60.5	--	--	--	--		
EP-C6	--	--	--	--	--	--	--	--	-3.287	2.8	-3.272	4.1	-3.494	0.3	--	--	--	--		
EP-C7	--	--	--	--	--	--	--	--	-2.768	33.5	-2.767	44.1	-2.913	12.9	--	--	--	--		
EP-C8	--	--	--	--	--	--	--	--	-3.082	54.4	-3.071	67.9	-3.224	14.4	--	--	--	--		
EP-C9	--	--	--	--	--	--	--	--	-3.151	88.5	-3.127	101.2	-	-	--	--	--	--		
EP-E1	--	--	--	--	--	--	--	--	-1.856	1179	-1.841	500	-1.903	111	--	--	--	--		
EP-E2	--	--	--	--	--	--	--	--	-1.849	51	-1.813	53.5	-1.867	11.7	--	--	--	--		
EP-E3	--	--	--	--	--	--	--	--	-1.738	10.2	-1.712	12.4	-1.761	1.8	--	--	--	--		
EP-E4	--	--	--	--	--	--	--	--	-1.768	7	-1.735	9.5	-1.77	1.2	--	--	--	--		
EP-E5	--	--	--	--	--	--	--	--	-1.757	2.3	-1.725	2.1	-1.779	0	--	--	--	--		
SS3	--	--	--	--	--	--	--	--	-0.272	170.9	-0.287	114.3	-0.323	27.9	--	--	--	--		
SS4	--	--	--	--	--	--	--	--	-0.773	1.6	-0.776	-	-0.827	25.5	--	--	--	--		
SS20	--	--	--	--	--	--	--	--	-0.096	2158	-0.103	500	-0.115	434	--	--	--	--		
SS21	--	--	--	--	--	--	--	--	-0.598	471	-0.598	259.7	-0.635	76.5	--	--	--	--		
SS22	--	--	--	--	--	--	--	--	-0.572	1010	-0.573	335	-0.626	73.9	--	--	--	--		
SS23	--	--	--	--	--	--	--	--	-0.345	17.6	-0.328	58.9	-0.367	12.9	--	--	--	--		
SS24	--	--	--	--	--	--	--	--	-0.424	1.2	-0.425	0.4	-0.466	0.2	--	--	--	--		
SS25	--	--	--	--	--	--	--	--	-0.803	532	-0.783	257.7	-0.821	66.5	--	--	--	--		
SS26	--	--	--	--	--	--	--	--	-0.497	3.2	-0.472	1.9	-0.539	0.2	--	--	--	--		
SS27	--	--	--	--	--	--	--	--	-0.179	45.2	-0.178	37.5	-0.195	7.9	--	--	--	--		

**General Notes:**  
1. The first day of SSDS operation was April 30, 2007.  
2. VOC = volatile organic compound.  
3. ppm = parts per million.  
4. in. w.c. = inches water column.  
5. "--" = not measured.  
6. NI = Not Installed.  
7. The soil vapor extraction (SVE) system was started up on August 22, 2007.  
\* Results obtained during SVE diagnostic test.





Table 4-1  
Sub-Slab Depressurization System (SSDS) Mon  
50 Tufts Street  
Somerville, Massachusetts

Monitoring Point	Date:	7/17/2007		7/24/2007		7/31/2007*		7/31/2007		8/7/2007		8/19/2007		8/20/2007		8/21/2007		8/22/2007	
		Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)
West Header		-4.55	45.1	-4.55	87.6	-5.86	16	-4.7	43.5	-4.65	50.3	-4.3	61.1	-4.83	56	-4.72	46	-3.59	46
Center Header		-4.65	101.8	-4.58	155.1	-6.08	31.9	-4.93	141.1	-4.83	136.2	-4.5	157	-4.58	131	-4.54	113	-3.61	118
East Header		-1.88	195.6	-1.89	266	-3.75	55.9	-1.85	171.7	-1.78	222.2	-1.4	239.6	-1.87	218	-1.86	196	-3.63	176
North Header		NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	--	--	--	--	-3.69	8200
South Header		NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	-4.94	684	-4.93	470	-3.75	467
Primary Carbon Influent		-8.13	82.2	-8.21	127.5	-9.56	29.3	-8.37	89.7	-8.39	100.7	-8.2	114	-6.25	119	-6.18	104	-5.7	234
Primary Carbon Effluent		--	--	--	--	--	--	--	--	--	--	9.5	18.1	--	21.9	10.17	28	--	19.4
System Discharge		--	0.2	--	1.1	--	0	--	0	--	0	-	0	--	0	--	0	--	0
EP-W1		--	--	-4.142	498	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-W2		--	--	-3.267	145.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-W3		--	--	-2.55	107.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-W4		--	--	-1.856	10.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-W5		--	--	-1.457	3.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-W6		--	--	-1.594	3.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-W7		--	--	-1.547	5.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-W8		--	--	-1.557	55.3	--	--	--	--	--	--	--	--	-1.553	-	-1.518	-	-1.381	-
EP-C1		--	--	-4.239	213	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-C2		--	--	-4.265	127.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-C3		--	--	-4.003	111.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-C4		--	--	-3.789	3000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-C5		--	--	-3.596	188.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-C6		--	--	-3.27	5.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-C7		--	--	-2.725	59.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-C8		--	--	-3.071	65.4	--	--	--	--	--	--	--	--	-2.954	-	-2.936	-	-2.712	-
EP-C9		--	--	-3.121	119	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-E1		--	--	-1.754	2000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-E2		--	--	-1.71	62.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-E3		--	--	-1.603	67.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-E4		--	--	-1.635	11.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EP-E5		--	--	-1.631	3.6	--	--	--	--	--	--	--	--	-1.583	-	-1.553	--	-1.603	--
SS3		--	--	-0.294	64.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS4		--	--	-0.835	163	--	--	--	--	--	--	--	--	-0.098	--	-0.101	--	-0.094	--
SS20		--	--	-0.125	3000	--	--	--	--	--	--	--	--	-0.585	--	-0.597	--	-0.568	--
SS21		--	--	-0.607	589	--	--	--	--	--	--	--	--	-0.549	--	-0.577	--	-0.528	--
SS22		--	--	-0.595	1200	--	--	--	--	--	--	--	--	-0.339	--	-0.332	--	-0.321	--
SS23		--	--	-0.368	61.6	--	--	--	--	--	--	--	--	-0.443	--	-0.443	--	-	--
SS24		--	--	-0.446	2	--	--	--	--	--	--	--	--	-0.443	--	-0.443	--	-	--
SS24		--	--	-0.78	265	--	--	--	--	--	--	--	--	-0.738	--	-0.741	--	-0.709	--
SS25		--	--	-0.475	3	--	--	--	--	--	--	--	--	-0.447	--	-0.437	--	-	--
SS26		--	--	-0.475	3	--	--	--	--	--	--	--	--	-0.447	--	-0.437	--	-	--
SS27		--	--	-0.184	103.5	--	--	--	--	--	--	--	--	-0.169	--	-0.168	--	-0.176	--

**General Notes:**  
1. The first day of SSDS operation was April 30, 2007.  
2. VOC = volatile organic compound.  
3. ppm = parts per million.  
4. in. w.c. = inches water column.  
5. "--" = not measured.  
6. NI = Not Installed.  
7. The soil vapor extraction (SVE) system was started up on August 22, 2007.  
\* Results obtained during SVE diagnostic test.





**Table 4-1**  
**Sub-Slab Depressurization System (SSDS) Mon**  
 50 Tufts Street  
 Somerville, Massachusetts

Monitoring Point	8/23/2007		8/24/2007		8/28/2007		9/4/2007		9/11/2007		9/18/2007		9/25/2007	
	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)	Pressure (in. w.c)	VOC (ppm)
West Header	-4.37	41	-4.36	--	-4.27	38	-4.28	60	-4.15	50.5	-4.35	49	-4.24	36
Center Header	-4.3	94	-4.24	--	-4.15	72	-4.23	113	-4.07	90.9	-4.29	96	-4.17	70
East Header	-2.01	160	-2.03	--	-1.92	125	-2.13	199	-2.05	157.1	-1.96	159	-1.96	136
North Header	-4.48	5800	-4.46	--	-4.32	2165	-4.41	2278	-4.26	1750	-4.47	1760	-4.31	931
South Header	-4.5	404	-4.44	--	-4.37	277	-4.44	387	-4.27	486	-4.48	308	-4.32	177
Primary Carbon Influent	-5.81	208	-5.78	--	-5.68	158	-5.74	209	-5.56	175.9	-5.82	178	-5.69	136
Primary Carbon Effluent	8.61	36	--	--	--	--	--	52	10.89	0	11.12	9	10.52	51
System Discharge	--	0	--	--	--	0	--	0.2	--	0	--	0	-	0
EP-W1	-3.993	228	--	--	-3.814	225	-3.784	266	-3.789	950	-3.751	224	-3.633	232
EP-W2	-3.109	85	--	--	-3.016	115	-2.962	117	-2.913	170	-2.873	85	-2.864	89.4
EP-W3	-2.348	19	--	--	-2.305	38	-2.235	26	-2.179	48	-2.162	27	-2.163	23.6
EP-W4	-1.712	3	--	--	-1.676	5	-1.611	2.5	-1.569	14.4	-1.585	0	-1.584	0.3
EP-W5	-1.315	0	--	--	-1.308	15	-1.247	1	-1.178	0.3	-1.219	0	-1.221	0
EP-W6	-1.471	0	--	--	-1.411	8	-1.382	1	-1.329	0	-1.343	0	-1.345	0
EP-W7	-1.417	0	--	--	-1.376	5	-1.345	2	-1.279	0.5	-1.287	0	-1.308	0.2
EP-W8	-1.447	21	-1.44	--	-1.408	20	-1.364	20	-1.298	17.2	-1.316	11	-1.331	11
EP-C1	-3.896	11	--	--	-3.762	30	-3.733	10.3	-3.724	86	-3.702	8	-3.591	10.5
EP-C2	-3.942	64	--	--	-3.786	83	-3.754	80	-3.753	344	-3.726	70	-3.637	66
EP-C3	-3.676	72	--	--	-3.512	90	-3.525	102	-3.507	451	-3.476	55	-3.398	76.7
EP-C4	-3.494	2220	--	--	-3.352	1910	-3.349	1700	-3.335	2500	-3.252	1330	-3.215	1230
EP-C5	-3.282	122	--	--	-3.137	128	-3.14	148	-3.131	145.3	-3.109	115	-3.085	120.1
EP-C6	-3.039	0	--	--	-2.896	8	-2.92	1.3	-2.867	1.3	-2.869	0	-2.772	0
EP-C7	-2.562	26	--	--	-2.424	15	-2.457	15	-2.419	10	-2.383	8	-2.381	5.3
EP-C8	-2.836	24	--	--	-2.712	18	-2.736	16.2	-2.665	12.2	-2.638	7.5	-2.634	6.5
EP-C9	-2.875	42	-2.8	--	-2.743	20	-2.775	10	-2.707	7	-2.672	4.5	-2.662	3.8
EP-E1	-1.843	528	--	--	-1.815	480	-1.923	560	-1.976	1000	-1.744	460	-1.761	457
EP-E2	-1.822	26	--	--	-1.755	43	-1.886	33	-1.865	109	-1.691	21	-1.717	22.1
EP-E3	-1.69	5	--	--	-1.633	13	-1.751	4.3	-1.743	9	-1.556	2	-1.591	1.5
EP-E4	-1.708	3	--	--	-1.641	4	-1.759	3.2	-1.724	2.5	-1.584	1	-1.613	1.2
EP-E5	-1.697	0	--	--	-1.653	2.5	-1.768	1	-1.712	0.5	-1.594	0	-1.623	0
SS3	-0.548	79	--	--	--	--	-0.259	121	-0.284	2000	-0.287	64	-0.568	107
SS4	-0.773	16	--	--	--	--	-0.739	107	-0.76	1700	-0.724	107	-0.716	87
SS20	-0.103	6100	-0.13	--	-0.104	5260	-0.117	1800	-0.119	4000	-0.112	1200	-0.107	1600
SS21	-0.594	439	--	--	-0.588	610	-0.611	572	-0.568	1200	-0.475	342	-0.587	390
SS22	-0.543	3	--	--	-0.533	18	-0.528	0.5	-0.487	0	-0.531	0	-0.502	209
SS23	-0.324	29	--	--	-0.321	53	-0.328	42	-0.294	41.1	-0.312	27	-0.315	31.9
SS24	-0.429	0	--	--	-0.414	23	-0.414	0.5	-0.401	0	-0.398	0	-0.417	0
SS25	-0.742	197	-0.72	--	-0.709	68	-0.719	229	-0.705	252	-0.697	192	-0.717	182
SS26	-0.431	3	--	--	-0.442	15	-0.42	1.2	-0.396	0	-0.364	0	-0.408	0
SS27	-0.174	11	-0.19	--	-0.18	25	-0.167	1.7	-0.17	14.6	-0.166	9	-0.167	10.1

**General Notes:**

1. The first day of SSDS operation was April 30, 2007.
  2. VOC = volatile organic compound.
  3. ppm = parts per million.
  4. in. w.c. = inches water column.
  5. "--" = not measured.
  6. NI = Not Installed.
  7. The soil vapor extraction (SVE) system was started up on August 22, 2007.
- \* Results obtained during SVE diagnostic test.





**Table 4-2**  
**Summary of SSDS Influent and Effluent Air Sampling Results**  
 50 Tufts Street  
 Somerville, Massachusetts

Analyte		Sample Location: Sample Name: Sample Date: Collected By: Units:		Carbon Influent				Carbon Effluent					
				04516-50T-INF 5/1/07 GEI		045162-50 TUFT-INF 6/12/07 GEI		04516-50T-EFF 5/1/07 GEI		045162-50 TUFT-EFF 6/12/07 GEI			
				µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV		
DEP Background													
Volatile Organic Compounds (VOCs)													
Acetone				7440	3130	<1400	<600	848 E	357 E	<24	<10		
Benzene	NS	NS		<160	<50	<1900	<600	3.0	0.93	<32	<10		
Chloroethane				<53	<20	<630	<240	<0.53	<0.2	<11	<4.0		
Chloroform				<240	<50	<2900	<600	<0.53	<0.20	93.8	19.2		
Chloromethane				<130	<20	<630	<240	0.89 J	0.43 J	<21	<10		
Carbon tetrachloride	1	0.16		<130	<20	<1500	<240	<1.3	<0.20	<25	<4.0		
1,1 Dichloroethane	NS	NS		<81	<20	<970	<240	<0.81	<0.2	14 J	3.4 J		
cis-1,2-Dichloroethylene				<79	<20	<950	<240	<0.79	<0.2	31	7.7		
1,1-Dichloroethylene				341	86.1	<950	<240	<0.79	<0.20	519	131		
1,4-Dioxane				936	260	<2200	<600	<1.8	<0.50	<36	<10		
Ethylbenzene				342	78.7	<2600	<600	<2.2	<0.5	<43	<10		
Freon 113				209 J	27.3 J	<4600	<600	<3.8	<0.5	<77	<10		
Methylene chloride				1650	476	<2100	<600	<1.7	<0.5	<35	<10		
Methyl ethyl ketone				<150	<50	<1800	<600	7.7	2.6	<29	<10		
Methyl Isobutyl Ketone				<200	<50	<2500	<600	3.4	0.82	<41	<10		
Propylene				<86	<50	<1000	<600	198 E	115 E	<17	<10		
Tetrachloroethylene (PCE)	11	1.6		392000	57800	347000 G	51100 G	<1.4	<0.20	117	17.3		
Tetrahydrofuran				663	225	<1800	<600	5.9	2.0	<29	<10		
1,1,1-Trichloroethane	30	5.41		13700	2510	12800	2340	<1.1	<0.20	8780	1610		
Trichloroethylene (TCE)	5	0.92		15700	2920	5800	1080	<1.1	<0.20	28	5.2		
Vinyl Chloride	NS	NS		<51	<20	<610	<240	<0.51	<0.20	<10	<4.0		
m,p-Xylene				1540	354	<2600	<600	<2.2	<0.5	<43	<10		
o-Xylene				534	123	<2600	<600	<2.2	<0.5	<43	<10		

**General Notes:**

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
2. µg/m<sup>3</sup> = micrograms per cubic meter.
3. ppbv = parts per billion by volume.
4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.

**Qualifying Notes:**

- J The reported result is below the laboratory reporting limit and is estimated.
- G The reported result is estimated due to duplicate precision outside control limits.
- E Value exceeds calibration range.





**Table 4-3**  
**Temporary Soil Vapor Sampling Point and Monitoring Well Summary**  
50 Tufts Street  
Somerville, Massachusetts

Location Name	Location Type	Installed By	Completion Date	Method	Well Diameter (in)	Well Screen Interval (ft)	Screened Strata	Total Depth (ft)
SVT-22S	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	3
SVT-22D	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	10
SVT-16S	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	3
SVT-16D	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	10
SVT-19D	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	10
SVT-17S	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	3
SVT-17D	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	10
SVT-18D	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	10
SVT-21D	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	10
SVT-24D	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	11
SVT-23D	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	11
SVT-20S	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	3
SVT-20D	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	10
SVT-2D	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	10
SVT-8D	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	3
SVT-9S	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	10
SVT-9D	Soil Vapor Point	GEI	7/9/07	Geoprobe	NA	NA	Fill	10
SVT-6D	Soil Vapor Point	GEI	7/10/07	Geoprobe	NA	NA	Fill	3
SVT-5S	Soil Vapor Point	GEI	7/10/07	Geoprobe	NA	NA	Fill	10
SVT-5D	Pilot Test Point	GEI	7/10/07	Geoprobe	2	7 - 10	Fill	10
SVT-3S	Soil Vapor Point	GEI	7/10/07	Geoprobe	NA	NA	Fill	3
SVT-3D	Soil Vapor Point	GEI	7/10/07	Geoprobe	NA	NA	Fill	3
SVT-1D	Soil Vapor Point	GEI	7/10/07	Geoprobe	NA	NA	Fill	10
SVT-4D	Soil Vapor Point	GEI	7/10/07	Geoprobe	NA	NA	Fill	10
SVT-7D	Soil Vapor Point	GEI	7/10/07	Geoprobe	NA	NA	Fill	10
SVT-MW202S	Soil Vapor Point	GEI	7/10/07	Geoprobe	NA	NA	Fill	3
MW202	Monitoring Well	GEI	7/10/07	Geoprobe	2	10.5-20.5	Fill/Sand and Gravel	21
SVT-27D	Soil Vapor Point	GEI	7/11/07	Geoprobe	NA	NA	Silty Sand	8
SVT-26D	Soil Vapor Point	GEI	7/11/07	Geoprobe	NA	NA	Silty Sand	8
SVT-25S	Soil Vapor Point	GEI	7/11/07	Geoprobe	NA	NA	Fill	3
SVT-25D	Soil Vapor Point	GEI	7/11/07	Geoprobe	NA	NA	Silty Sand	8
MW203	Monitoring Well	GEI	7/11/07	Geoprobe	2	6-18	Silt/Till	18
MW201	Monitoring Well	GEI	7/11/07	Geoprobe	2	11-21	Fill/Sand and Gravel	21
SVT-MW201S	Soil Vapor Point	GEI	7/12/07	Geoprobe	NA	NA	Fill	3
SVT-8S	Pilot Test Point	GEI	7/12/07	Geoprobe	2	3-4	Fill	4
SVT-11S	Soil Vapor Point	GEI	7/12/07	Hand Tools	NA	NA	Fill	3
SVT-10D	Soil Vapor Point	GEI	7/12/07	Hand Tools	NA	NA	Fill	6
SVT-12S	Pilot Test Point	GEI	7/12/07	Hand Tools	2	3-4	Fill	4
SVT-12D	Soil Vapor Point	GEI	7/12/07	Hand Tools	NA	NA	Fill	7
SVT-14S	Soil Vapor Point	GEI	7/12/07	Hand Tools	NA	NA	Fill	3
SVT-15D	Soil Vapor Point	GEI	7/12/07	Hand Tools	NA	NA	Fill	5
SVE-1	Soil Vapor Extraction Point	GEI	8/13/07	HAS Hollow Stem Auger	2	6-10	Fill	10





**Table 4-3**  
**Temporary Soil Vapor Sampling Point and Monitoring Well Summary**  
50 Tufts Street  
Somerville, Massachusetts

Location Name	Location Type	Installed By	Completion Date	Method	Well Diameter (in)	Well Screen Interval (ft)	Screened Strata	Total Depth (ft)
SVE-2	Soil Vapor Extraction Point	GEI	8/13/07	HAS Hollow Stem Auger	2	6-10	Fill	10
SVE-3	Soil Vapor Extraction Point	GEI	8/13/07	HAS Hollow Stem Auger	2	6-10	Fill	10
SVE-4	Soil Vapor Extraction Point	GEI	8/13/07	HAS Hollow Stem Auger	2	6-10	Fill	10
SVE-5	Soil Vapor Extraction Point	GEI	8/13/07	HAS Hollow Stem Auger	2	6-10	Fill	10
SVE-6	Soil Vapor Extraction Point	GEI	8/13/07	HAS Hollow Stem Auger	2	6-10	Fill	10
SVE-7	Soil Vapor Extraction Point	GEI	8/13/07	HAS Hollow Stem Auger	2	6-10	Fill	10
EP-W1	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-W2	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-W3	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-W4	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-W5	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-W6	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-W7	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-W8	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-C1	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-C2	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-C3	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-C4	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-C5	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-C6	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-C7	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-C8	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-C9	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-E1	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-E2	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-E3	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-E4	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
EP-E5	Sub-Slab Extraction Point	GEI	4/1/07 - 4/30/07	Concrete coring and hand tools	2	1-6	Fill	6
SS3	Sub-Slab Monitoring Point	NA	NA	NA	NA	NA	NA	NA
SS4	Sub-Slab Monitoring Point	NA	NA	NA	NA	NA	NA	NA
SS20	Sub-Slab Monitoring Point	GEI	5/10/07	Hand Tools	NA	NA	NA	1
SS21	Sub-Slab Monitoring Point	GEI	5/10/07	Hand Tools	NA	NA	NA	1
SS22	Sub-Slab Monitoring Point	GEI	5/10/07	Hand Tools	NA	NA	NA	1
SS23	Sub-Slab Monitoring Point	GEI	5/10/07	Hand Tools	NA	NA	NA	1
SS24	Sub-Slab Monitoring Point	GEI	5/10/07	Hand Tools	NA	NA	NA	1
SS25	Sub-Slab Monitoring Point	GEI	5/10/07	Hand Tools	NA	NA	NA	1
SS26	Sub-Slab Monitoring Point	GEI	5/10/07	Hand Tools	NA	NA	NA	1
SS27	Sub-Slab Monitoring Point	GEI	5/10/07	Hand Tools	NA	NA	NA	1

**General Notes:**

1. in = inches.
2. ft = feet.
3. SHA = Sanborn Head & Associates, Inc.
4. NA = not applicable.





**Table 4-4**  
**Chemical Testing Results-Soil Vapor Samples**  
 50 Tufts Street  
 Somerville, Massachusetts

Sample Location: Sample Name:  Sample Date: Collected By:  Units:		SVT-8D		SVT-14S		SVT-22D		SVT-MW202S	
		045162-SVT-8D		045162-SVT-14S		045162-SVT-22D		045162-SVT-MW202S	
		7/17/07 GEI		7/17/07 GEI		7/17/07 GEI		7/17/07 GEI	
		ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV
Analyte	Method								
Volatile Organic Compounds (VOCs)  Dichloroethylene, 1,1- Dichloroethylene, trans,1,2- Dichloroethylene, cis,1,2- Tetrachloroethylene (PCE) Trichloroethane, 1,1,1- Trichloroethylene (TCE)	TO-15	10900	2750	8.7	2.2	< 790	< 200	11 J	2.8 J
		< 790	< 200	76.1	19.2	< 790	< 200	< 16	< 4.0
		< 790	< 200	1920	484	< 790	< 200	< 16	< 4.0
		7190000	1060000	517000	76300	5710000	842000	2550	376
		151000	27700	54.6	10	5780	1060	537	98.5
		116000	21600	4050	754	3500	651	253	47



**Table 4-5**  
**Results of SVE Diagnostic Tests - July 2007**  
 50 Tufts Street  
 Somerville, Massachusetts

Test No.: Date: Parameter:	Pre-Test 7/24/2007		Test 1 7/25/2007	Test 2 7/25/2007	Test 3 7/25/2007	Test 4 7/25/2007	Test 5 7/25/2007	Test 6 7/26/2007	Test 7 7/26/2007	Test 8 7/31/2007	
	VOC (ppm)	Soil Vapor Air Pressure (in. w.c.)								Soil Vapor Air Pressure (in. w.c.)	VOC (ppm)
Test Conditions:	Pre-test soil Vapor VOC measurements	Pre-test soil Vapor pressure measurements	SVT-5D vacuum of 3.0 in. w.c.	SVT-8S vacuum of 3.0 in. w.c.	SVT-5D vacuum of 6.1 in. w.c.	SVT-5D vacuum of 9.5 in. w.c.	SVT-5D vacuum of 11.2 in. w.c.	SVT-5D and SVT-8S vacuum of 4.0 in. w.c. overnight	SVT-5D and SVT-8S vacuum of 4.0 in. w.c. overnight	SVT-5D and SVT-8S vacuum of 4.0 in. w.c. over weekend	Post-test soil Vapor VOC measurements
Monitoring Point											
SVT-MW201S	16.2	0	0	0.004	NM	0	0	0.003	0	0	5.1
SVT-MW202S	0.8	0.003	0	0	NM	0.001	0	NM	NM	0	2.5
SVT-1D	168	0	0	0	-0.003	-0.01	-0.011	-0.004	-0.01	-0.016	48.7
SVT-2D	66	-0.003	0.017	0	0	-0.01	-0.018	0.007	0.007	-0.003	51.9
SVT-3D	0	0.328	0.242	0.208	0.32	0.24	0.108	-0.132	-0.026	-0.023	103.8
SVT-3S	232	-0.013	-0.008	-0.011	-0.003	-0.004	-0.036	-0.015	-0.021	-0.021	54.5
SVT-4D	0	0	0	0.447	NM	0.247	0.468	-0.001	0.371	0.362	51.9
SVT-5D	280	-0.025	-2.995	-0.049	-6.1	-9.54	-11.15	-4	-4.09	-4.245	721
SVT-5S	282	-0.026	-0.094	-0.02	-0.165	-0.24	-0.318	-0.132	-0.149	-0.148	171.4
SVT-6D	1131	-0.114	-0.084	-0.005	-0.07	-0.12	-0.38	-0.11	-0.194	-0.207	1489
SVT-7D	90	0	0	0	NM	0.009	0	0	NM	0	5.1
SVT-8D	1492	-0.005	-0.035	-0.022	-0.04	-0.075	-0.119	-0.07	-0.079	-0.08	1067
SVT-8S	290	-0.01	-0.003	-2.97	0	-0.015	-0.015	-4.01	-4.107	-4.257	1059
SVT-9D	246	0.006	-0.105	-0.045	-0.011	-0.069	-0.11	-0.032	-0.097	-0.127	2000
SVT-9S	493	-0.022	-0.027	-0.025	-0.011	-0.02	-0.077	-0.035	-0.051	-0.069	1600
EP-C8	NM	NM	NM	NM	NM	NM	NM	-3.95	NM	NM	NM

**General Notes:**

1. VOC = Volatile Organic Compounds.
2. ppm = parts-per-million.
3. VOC measurements conducted with photoionization detector equipped with a 10.6 eV lamp.
4. For pressure readings which fluctuated during measurement, the mid-range value is presented here.
5. NM = Not Measured.
6. Various vacuum pressures were obtained by temporarily closing individual SSDS extraction points to 'push' vacuum outside the building.
7. Vacuum was applied to temporary extraction points overnight from 7/25-7/26.
8. in. w.c. = inches water column.





Table 4-6  
Soil Vapor Extraction System (SVE) Monitoring Results  
50 Tufts Street  
Somerville, Massachusetts

Date:	8/20/2007		8/21/2007		8/22/2007		8/23/2007		8/24/2007		8/28/2007		9/4/2007		9/11/2007		9/18/2007		9/25/2007	
Monitoring Point	Pressure (in. w.c.)	VOC (ppm)	Pressure (in. w.c.)	VOC (ppm)	Pressure (in. w.c.)	VOC (ppm)	Pressure (in. w.c.)	VOC (ppm)	Pressure (in. w.c.)	VOC (ppm)	Pressure (in. w.c.)	VOC (ppm)	Pressure (in. w.c.)	VOC (ppm)	Pressure (in. w.c.)	VOC (ppm)	Pressure (in. w.c.)	VOC (ppm)	Pressure (in. w.c.)	VOC (ppm)
West Header	-4.83	56	-4.72	46	-4.25	46	-4.9	41	-4.36	-	-4.27	38	-4.28	60	-4.15	50.5	-4.35	49	-4.24	36
Center Header	-4.58	131	-4.54	113	-4.21	118	-4.86	94	-4.24	-	-4.15	72	-4.23	113	-4.07	90.9	-4.29	96	-4.17	70
East Header	-1.87	218	-1.86	196	-1.91	176	-2.25	160	-2.03	-	-1.92	125	-2.13	199	-2.05	157.1	-1.96	159	-1.96	136
North Header	--	--	--	--	-4.28	8200	-5.11	5800	-4.46	-	-4.32	2165	-4.41	2278	-4.26	1750	-4.47	1760	-4.31	931
South Header	-4.94	684	-4.93	470	-4.31	467	-5.12	404	-4.44	-	-4.37	277	-4.44	387	-4.27	486	-4.48	308	-4.32	177
Primary Carbon Influent	-6.25	119	-6.18	104	-5.7	234	-6.68	208	-5.78	-	-5.68	158	-5.74	209	-5.56	175.9	-5.82	178	-5.69	136
Primary Carbon Effluent	--	21.9	10.17	28	--	19.4	8.61	36	--	--	--	0	--	52	10.89	0	11.12	9	10.52	51
System Discharge	--	0	--	0	--	0	--	0	--	--	--	0	--	0.2	NM	0	NM	0	--	0
SVE-1	NI	NI	NI	NI	-4.34	157	-4.96	89	--	--	-4.305	30	-4.31	22	-4.387	184	-4.3	12	-4.16	11.8
SVE-2	NI	NI	NI	NI	-4.31	428	-4.96	276	--	--	-4.307	55	-4.32	49	-4.345	162	-4.31	22	-4.12	22.5
SVE-3	NI	NI	NI	NI	-4.38	6450	-4.97	2300	--	--	-4.267	630	-4.28	621	-4.33	491	-4.27	426	-4.11	479
SVE-4	NI	NI	NI	NI	-4.32	1009	-4.98	465	--	--	-4.315	726	-4.3	510	-4.35	340	-4.31	224	-4.15	213
SVE-5	NI	NI	NI	NI	-4.35	8000	-5.01	4000	--	--	-4.318	4040	-4.29	1500	-4.36	1200	-4.31	1100	-4.16	1519
SVE-6	-4.98	197	-4.91	152	-4.39	139	-4.98	121	--	--	-4.366	72	-4.39	102	-4.46	312	-4.44	112	-4.25	87
SVE-7	-4.98	577	-4.97	263	-4.37	368	-4.97	266	--	--	-4.376	165	-4.41	320	-4.46	790	-4.45	258	-4.24	330
SVT-MW201D	--	--	--	--	--	--	--	--	--	--	-0.045	0	-0.049	2	-0.065	20	-0.048	1	-0.052	1.7
SVT-MW201S	--	--	--	--	--	--	--	--	--	--	0	0	-0.004	3.5	-0.004	15	-0.005	2	0	1.8
SVT-MW202D	--	--	--	--	--	--	--	--	--	--	-0.013	0	-0.012	0.5	-0.019	0	-0.018	0	-0.008	0
SVT-MW202S	--	--	--	--	--	--	--	--	--	--	0	0	0	1.5	0	0	0	0	0	0.2
SVT-1D	--	--	--	--	-0.32	1.4	-0.36	28	--	--	-0.6	2.5	-0.327	7.5	-0.321	196	-1.405	2	-0.226	0
SVT-2D	--	--	--	--	-0.73	19.4	-0.81	38	--	--	-1.1	5	-0.715	10.7	-0.753	124	-0.712	1	-0.669	0
SVT-3D	--	--	--	--	-0.14	5	0.301	4	--	--	0.36	12.4	-0.058	22	-0.149	15	-0.092	0	-0.096	9.1
SVT-3S	--	--	--	--	-0.31	40	-0.749	24	--	--	-0.07	7.5	-0.074	11.6	-0.095	3.2	-0.085	4	-0.286	3.8
SVT-4D	--	--	--	--	-	-	0.138	38	--	--	0.25	17.5	-0.065	21	-0.107	16	-0.092	1	-0.074	7.5
SVT-5D	--	--	--	--	-1.46	7.4	-1.736	23	--	--	-1.49	0	-1.443	30	-1.594	105	-1.517	11	-1.358	12.1
SVT-5S	--	--	--	--	-0.52	129	-0.635	42	--	--	-0.54	2.5	-0.523	11.7	-0.703	124	-0.636	5	-0.545	5.2
SVT-6D	--	--	--	--	--	--	-1.257	248	--	--	-1.19	53	-1.187	67	-1.351	44	-1.217	13	-1.141	25.8
SVT-7D	--	--	--	--	--	--	-0.027	4	--	--	-0.025	2.5	-0.03	1.3	-0.017	0	-0.032	1	-0.022	0.2
SVT-8D	--	--	--	--	--	--	-1.98	1850	--	--	-1.731	541	-0.18	196	-1.827	7000	-1.642	116	-1.568	199
SVT-8S	--	--	--	--	--	--	-0.21	600	--	--	-0.183	180	-1.697	734	-0.258	1050	-0.214	707	-0.171	534
SVT-9D	--	--	--	--	-0.79	1500	-0.805	1370	--	--	-0.778	830	-0.769	1000	-1.003	1000	-0.836	1173	-0.716	933
SVT-9S	--	--	--	--	-0.53	2500	-0.31	2350	--	--	-0.695	2029	-0.285	1300	-1.102	928	-1.011	632	-0.347	877
SVT-10D	--	--	--	--	--	--	-0.01	5	--	--	0.394	38	0.11	4	-0.016	0	--	1	-0.008	2.2
SVT-11S	--	--	--	--	--	--	-0.008	1.3	--	--	-0.008	35	-0.007	0.5	-0.048	0	--	0	-0.005	0
SVT-12D	--	--	--	--	--	--	-0.019	1.3	--	--	-0.021	40	-0.008	3	-0.161	5	-0.125	5	--	--
SVT-12S	--	--	--	--	--	--	-0.009	1.3	--	--	-0.01	38	0.314	8	-0.09	0	--	1.3	--	0
SVT-14S	--	--	--	--	--	--	-0.004	98	--	--	-0.006	162	-0.003	148	-0.008	115	-0.005	117	-0.005	24.6
SVT-15D	--	--	--	--	--	--	-0.013	1.3	--	--	-0.015	0	-0.013	1.5	-0.013	0	-0.015	0	-0.014	0
SVT-16D	--	--	--	--	--	--	-0.367	6	--	--	-0.305	18	-0.221	29	-0.01	36	-0.155	21	-0.219	14
SVT-16S	--	--	--	--	--	--	-0.003	36	--	--	-0.007	33	-0.287	90	-0.009	73	0	30	-0.18	47
SVT-17D	--	--	--	--	--	--	--	--	--	--	0.68	30	0.41	53	-0.006	114	0	41	-0.011	38
SVT-17S	--	--	--	--	--	--	--	--	--	--	0.006	33	0	45	-0.005	45	0	35	-0.007	31
SVT-18D	--	--	--	--	--	--	--	--	--	--	0.006	68	0.004	123	0	137	0	164	0	147
SVT-19D	--	--	--	--	--	--	0.12	270	--	--	-0.011	190	-0.007	266	-0.012	420	0	441	-0.007	291
SVT-20D	--	--	--	--	--	--	0	50	--	--	0.003	30	0	33	0	91	0	72	0	39
SVT-20S	--	--	--	--	--	--	0	36	--	--	0	26	0	29	0	70	0	48	0	23
SVT-21D	--	--	--	--	--	--	--	--	--	--	0.004	50	0	87	-0.002	125	0	101	0.36	79
SVT-22D	--	--	--	--	--	--	-0.119	290	--	--	-0.181	208	-0.185	140	-0.264	870	-0.209	141	-0.17	99
SVT-22S	--	--	--	--	--	--	-0.003	86	--	--	-0.005	60	-0.173	55	-0.005	163	0	11	-0.15	5
SVT-23D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	NM	0.234	27	0.34	40
SVT-24D	--	--	--	--	--	--	--	--	--	--	0	23	0	28	0	76	0	49	0	33
SVT-25D	--	--	--	--	--	--	--	--	--	--	--	--	0	30	0	34	0	28	--	--
SVT-25S	--	--	--	--	--	--	--	--	--	--	--	--	0	0	0	0	0	0	--	--
SVT-26D	--	--	--	--	--	--	--	--	--	--	--	--	0	0.6	0	7	0	0	--	--
SVT-27D	--	--	--	--	--	--	--	--	--	--	--	--	0.004	0.4	0	0	0.006	0	--	--

**General Notes:**

1. The SVE system was started up on August 22, 2007.
2. VOC = volatile organic compound in parts per million (ppm).
3. ppm = parts per million.
4. in. w.c. = inches water column.
5. "--" = not measured.
6. Header readings on 8/23/07 were taken with one carbon tank in series. All monitoring point readings were taken with two carbon tanks in series.
7. SVT monitoring points listed on 9/11/07 were measured on 9/12/07 due to rain.
8. NI = Not Installed.
9. South header online 8/20/07.





Table 4-7  
Summary of Indoor and Outdoor Air Testing Results  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected By: Units:		North Parking Lot								Northwest Warehouse								North Office							
		04516-50T-NP		04516-NP		045162-NP		04516-50T-NP		04516-50T-NW		04516-NW		045162-NW		04516-50T-NW		04516-50T-NO		04516-NO		045162-NO		04516-50T-NO	
		5/1/07		5/14/07		6/28/07		8/28/07		5/1/07		5/14/07		6/28/07		8/28/07		5/1/07		5/14/07		6/28/07		8/28/07	
		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI	
		µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	Method																								
Volatile Organic Compounds (VOCs)		TO-15																							
Carbon tetrachloride		0.75 J	0.12 J	<1.3	<0.20	<1.3	<0.20	0.63 J	0.10 J	0.75 J	0.12 J	<1.3	<0.20	0.69 J	0.11 J	0.69 J	0.11 J	0.69 J	0.11 J	<1.3	<0.20	0.61 J	0.097 J	0.63 J	0.10 J
1,1 Dichloroethane		<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20
cis-1,2-Dichloroethylene		<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20
1,1-Dichloroethylene		<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20
Tetrachloroethylene (PCE)		1.8	0.26	7.5	1.1	12 G	1.7 G	14	2	33	4.8	11	1.6	15 G	2.2 G	45	6.6	34	5.0	6.4	0.94	8.8 G	1.3 G	8.8	1.3
1,1,1-Trichloroethane		0.38 J	0.070 J	0.98 J	0.18 J	2.0	0.36	2	0.36	2.6	0.48	<1.1	<0.20	0.60 J	0.11 J	4	0.73	3.0	0.55	<1.1	<0.20	0.87 J	0.16 J	0.93 J	0.17 J
Trichloroethylene (TCE)		< 1.1	< 0.20	< 1.1	< 0.20	1.6	0.30	1.60	0.29	4.1	0.76	<1.1	<0.20	<1.1	<0.20	2.8	0.53	5.4	1.0	<1.1	<0.20	0.70 J	0.13 J	0.91 J	0.17 J

- General Notes:**
- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  - 2. µg/m³ = micrograms per cubic meter.
  - 3. ppbv = parts per billion by volume.
  - 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.
  - G The reported result is estimated due to laboratory duplicate precision outside control limits.
  - P The reported result is estimated due to field duplicate precision outside control limits.





Table 4-7  
Summary of Indoor and Outdoor Air Testing Results  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected By: Units:		South Office								North Central Warehouse								South Garage							
		04516-50T-SO		04516-SO		045162-SO		04516-50T-SO		04516-50T-NC		04516-NC		045162-NC		04516-50T-NC		04516-50T-GA		04516-GA		045162-GA		04516-50T-GA	
		5/1/07		5/14/07		6/28/07		8/28/07		5/1/07		5/14/07		6/28/07		8/28/07		5/1/07		5/14/07		6/28/07		8/28/07	
		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI	
Analyte	Method	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Volatile Organic Compounds (VOCs)		TO-15																							
Carbon tetrachloride		0.75 J	0.12 J	<1.3	<0.20	0.69 J	0.11 J	0.61 J	0.097 J	0.75 J	0.12 J	<1.3	<0.20	0.60 J	0.096 J	0.59 J	0.093 J	0.75 J	0.12 J	<1.3	<0.20	0.69 J	0.11 J	0.69 J	0.11 J
1,1 Dichloroethane		<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20
cis-1,2-Dichloroethylene		<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20
1,1-Dichloroethylene		<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20
Tetrachloroethylene (PCE)		38	5.6	14	2.0	18 G	2.7 G	15.0	2.2	47	7.0	30	4.4	16 G	2.3 G	69.2	10.2	50	7.3	26	3.9	22 G	3.2 G	79.3	11.7
1,1,1-Trichloroethane		1.9	0.34	<1.1	<0.20	0.55 J	0.10 J	1.4	0.25	1.4	0.25	<1.1	<0.20	<1.1	<0.20	3.7	0.67	1.5	0.28	<1.1	<0.20	<1.1	<0.20	5.2	0.95
Trichloroethylene (TCE)		3.4	0.64	<1.1	<0.20	0.81 J	0.15 J	1.4	0.26	2.0	0.37	<1.1	<0.20	<1.1	<0.20	3.4	0.63	2.4	0.44	<1.1	<0.20	<1.1	<0.20	4.4	0.82

- General Notes:**
- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  - 2. µg/m³ = micrograms per cubic meter.
  - 3. ppbv = parts per billion by volume.
  - 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.
  - G The reported result is estimated due to laboratory duplicate precision outside control limits.
  - P The reported result is estimated due to field duplicate precision outside control limits.





Table 4-7  
Summary of Indoor and Outdoor Air Testing Results  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Sample Name: Sample Date: Collected By: Units:		South Parking Lot								South Central Warehouse								Indoor Air Duplicate of South Central Warehouse							
		04516-50T-SP		04516-SP		045162-SP		04516-50T-SP		04516-50T-SC		04516-SC		045162-SC		04516-50T-SC		04516-50T-IA		04516-IA		045162-IA		04516-50T-IA	
		5/1/07		5/14/07		6/28/07		8/28/07		5/1/07		5/14/07		6/28/07		8/28/07		5/1/07		5/14/07		6/28/07		8/28/07	
		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI		GEI	
Analyte	Method	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Volatile Organic Compounds (VOCs)																									
Carbon tetrachloride	TO-15	0.69 J	0.11 J	0.63 J	0.10 J	<1.3	<0.20	0.69 J	0.11 J	< 1.3	< 0.20	<1.3	<0.20	0.69 J	0.11 J	0.75 J	0.12 J	0.69 J	0.11 J	0.63 J	0.10 J	<1.3	<0.20	0.69 J	0.11 J
1,1 Dichloroethane		<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20	<0.81	<0.20
cis-1,2-Dichloroethylene		<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20
1,1-Dichloroethylene		<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20	<0.79	<0.20
Tetrachloroethylene (PCE)		3.7	0.54	2.8	0.4	1.8 G	0.26 G	160	23.60	43 P	6.4 P	23 P	3.4 P	18 GP	2.6 GP	66.0	9.7	8.1 P	1.2 P	6.8 P	1.0 P	10 GP	1.5 GP	63	9.3
1,1,1-Trichloroethane		< 1.1	< 0.20	<1.1	<0.20	<1.1	<0.20	16	2.9	1.3	0.24	<1.1	<0.20	0.50 J	0.092 J	4.7	0.87	1.2	0.22	<1.1	<0.20	<1.1	<0.20	4.4	0.81
Trichloroethylene (TCE)		< 1.1	< 0.20	<1.1	<0.20	<1.1	<0.20	12	2.2	2.0	0.37	<1.1	<0.20	<1.1	<0.20	3.8	0.7	1.6	0.29	<1.1	<0.20	<1.1	<0.20	3.6	0.67

- General Notes:**
- Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  - µg/m<sup>3</sup> = micrograms per cubic meter.
  - ppbv = parts per billion by volume.
  - "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.
  - G The reported result is estimated due to laboratory duplicate precision outside control limits.
  - P The reported result is estimated due to field duplicate precision outside control limits.





**Table 4-8**  
**Summary of Meteorological Data During Air Sampling Events**  
50 Tufts Street  
Somerville, Massachusetts

Sample Date	Associated Sample ID	Outside Temperature (°F):		Outside Barometric Pressure (in. Hg):		Inside Temperature (°F):		Inside Barometric Pressure (in. Hg):		Prevailing Wind Direction:		General Weather Conditions:		Significant precipitation within 12 hours prior to Sampling
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	
5/1/2007	GA	55	62	29.98	30.01	NM	NM	NM	NM	West	West	sunny	sunny	No
5/1/2007	NW	55	62	29.98	30.01	NM	NM	NM	NM	West	West	sunny	sunny	No
5/1/2007	NO	55	62	29.98	30.01	NM	NM	NM	NM	West	West	sunny	sunny	No
5/1/2007	NC	55	62	29.98	30.01	NM	NM	NM	NM	West	West	sunny	sunny	No
5/1/2007	NP	55	62	29.98	30.01	NM	NM	NM	NM	West	West	sunny	sunny	No
5/1/2007	SP	55	62	29.98	30.01	NM	NM	NM	NM	West	West	sunny	sunny	No
5/1/2007	SC	55	62	29.98	30.01	NM	NM	NM	NM	West	West	sunny	sunny	No
5/1/2007	IA	55	62	29.98	30.01	NM	NM	NM	NM	West	West	sunny	sunny	No
5/1/2007	SO	55	62	29.98	30.01	NM	NM	NM	NM	West	West	sunny	sunny	No
5/14/2007	GA	58	68	30.01	30.03	NM	NM	NM	NM	West	West	sunny	sunny	No
5/14/2007	SP	58	68	30.01	30.03	NM	NM	NM	NM	West	West	sunny	sunny	No
5/14/2007	NP	58	68	30.01	30.03	NM	NM	NM	NM	West	West	sunny	sunny	No
5/14/2007	SC	58	68	30.01	30.03	NM	NM	NM	NM	West	West	sunny	sunny	No
5/14/2007	NC	58	68	30.01	30.03	NM	NM	NM	NM	West	West	sunny	sunny	No
5/14/2007	SO	58	68	30.01	30.03	NM	NM	NM	NM	West	West	sunny	sunny	No
5/14/2007	NO	58	68	30.01	30.03	NM	NM	NM	NM	West	West	sunny	sunny	No
5/14/2007	NW	58	68	30.01	30.03	NM	NM	NM	NM	West	West	sunny	sunny	No
6/28/2007	SP	94.8	95.7	29.84	29.8	NA	NA	NA	NA	West	West	sunny, windy	sunny, windy	No
6/28/2007	NO	88	91	29.85	29.79	83.3	85.8	29.86	29.78	West/Southwest	West	sunny, hot	sunny, hot	No
6/28/2007	NW	88	91	29.85	29.79	84.7	89.7	29.84	29.8	West/Southwest	West	sunny, hot	sunny, hot	No
6/28/2007	NC	88	91	29.85	29.79	86	90.3	29.84	29.8	West/Southwest	West	sunny, hot	sunny, hot	No
6/28/2007	SC	88	91	29.85	29.79	86.3	90.5	29.84	29.8	West/Southwest	West	sunny, hot	sunny, hot	No
6/28/2007	IA	88	91	29.85	29.79	86.3	86.9	29.84	29.78	West/Southwest	West	sunny, hot	sunny, hot	No
6/28/2007	GA	88	91	29.85	29.79	85.2	87.9	29.84	29.8	West/Southwest	West	sunny, hot	sunny, hot	No
6/28/2007	SO	88	91	29.85	29.79	83.3	85.8	29.86	29.78	West/Southwest	West	sunny, hot	sunny, hot	No
8/28/2007	NW	81	94	30.23	30.2	NM	NM	30.23	30.2	Variable	Variable	sunny	sunny	No
8/28/2007	NO	81	94	30.23	30.2	NM	NM	30.23	30.2	Variable	Variable	sunny	sunny	No
8/28/2007	SO	81	94	30.23	30.2	NM	NM	30.23	30.2	Variable	Variable	sunny	sunny	No
8/28/2007	NC	81	94	30.23	30.2	NM	NM	30.23	30.2	Variable	Variable	sunny	sunny	No
8/28/2007	SC	81	94	30.23	30.2	NM	NM	30.23	30.2	Variable	Variable	sunny	sunny	No
8/28/2007	IA	81	94	30.23	30.2	NM	NM	30.23	30.2	Variable	Variable	sunny	sunny	No
8/28/2007	GA	81	94	30.23	30.2	NM	NM	30.23	30.2	Variable	Variable	sunny	sunny	No
8/28/2007	SP	81	94	30.23	30.2	NA	NA	NA	NA	Variable	Variable	sunny	sunny	No
8/28/2007	NP	81	94	30.23	30.2	NA	NA	NA	NA	Variable	Variable	sunny	sunny	No

**General Notes:**

1. ° F = degrees Fahrenheit
2. in. Hg. = inches of mercury
3. Temperatures were measured in the field using a hand-held thermometer.
4. Barometric pressures were measured in the field with a Sensor Instrument Nimbus Trademark digital barometer.
5. NM = Not Measured.
6. NA = Not Applicable.





**Table 5-1**  
**Soil Boring and Monitoring Well Summary**  
50 Tufts Street  
Somerville, Massachusetts

Location Name	Location Type	Installed By	Completion Date	Method	Well Diameter (in)	Well Screen Interval (ft bgs)	Ground Surface Elevation (ft NGVD)	Screened Strata	Total Depth (ft)	Comment
GEO-1	Monitoring Well	GeolInsight	8/12/04	HSA	2	5 - 20	26.1	Sand	20	
GEO-2	Monitoring Well	GeolInsight	8/12/04	HSA	2	5 - 20	27.1	Sand	20	
GEO-3	Monitoring Well	GeolInsight	8/13/04	HSA	2	5 - 20	25.9	Sand	20	
GEO-4	Monitoring Well	GeolInsight	8/13/04	HSA	2	4 - 19	22.1	Sand	19	
GEO-5	Monitoring Well	GeolInsight	8/16/04	HSA	2	5 - 20	20.5	Sand, Silt and Clay	20	
GEO-6	Monitoring Well	GeolInsight	8/13/04	HSA	2	5 - 20	18.1	Sand	20	
GEO-7	Soil Boring Only	GeolInsight	8/16/04	HSA	NA	NA	unknown	NA	13	
MW-1	Monitoring Well	unknown	unknown	unknown	1	unknown	26.2	unknown	unknown	Boring/well log not provided
MW-2	Monitoring Well	unknown	unknown	unknown	1	unknown	25.5	unknown	unknown	Boring/well log not provided
MW-3	Monitoring Well	unknown	unknown	unknown	1	unknown	25.4	unknown	unknown	Boring/well log not provided
SH-1	Monitoring Well	SHA	6/21/02	Geoprobe	1	9 - 14	29.7	Sand	14	
SH-2	Monitoring Well	SHA	6/21/02	Geoprobe	1	7 - 14	29.7	Sand	14	
SH-3	Monitoring Well	SHA	6/21/02	Geoprobe	1	8 - 13	29.8	Sand	13	
SH-4	Monitoring Well	SHA	6/21/02	Geoprobe	1	11 - 16	29.8	Sand	16	
SH-5	Monitoring Well	SHA	6/21/02	Geoprobe	1	8 - 13	29.7	Sand and Gravel	13	
SH-B1	Soil Boring Only	SHA	6/21/02	Geoprobe	NA	NA	unknown	NA	15	
SH-B2	Soil Boring Only	SHA	6/21/02	Geoprobe	NA	NA	unknown	NA	12	
SH-MW1	Monitoring Well	SHA	7/3/02	HSA/Rock core	2	10 - 30	24.5	Silt, Clay and Bedrock	30	
SH-MW2	Monitoring Well	SHA	7/3/02	HSA	2	10 - 25	24.7	Silt and Clay	25	
SH-MW3	Monitoring Well	SHA	7/3/02	HSA	2	10 - 24	22.9	Silt and Clay	24	
Soil Boring-1	Soil Boring Only	GeolInsight	8/12/04	HSA	NA	NA	unknown	NA	11	Possibly SB1 on Fig. 5-1
Soil Boring-2	Soil Boring Only	GeolInsight	8/12/04	HSA	NA	NA	unknown	NA	10	Possibly SB2 on Fig. 5-1
MW101	Monitoring Well	GEI	5/1/06	HSA	2	9 - 19	27.0	Sand and Gravel	19	
MW102	Monitoring Well	GEI	5/1/06	HSA	2	6 - 16	19.2	Sand, Gravel and Clay	16	
MW103	Monitoring Well	GEI	5/1/06	HSA	2	6 - 16	19.8	Sand, Gravel and Silt	16	
MW104	Monitoring Well	GEI	5/24/06	Geoprobe	1	5 - 15	17.9	Sand, Gravel and Silt	15	
MW105	Monitoring Well	GEI	5/2/06	HSA	2	19 - 29	39.6	Sand, Gravel and Silt	29	
MW106	Monitoring Well	GEI	1/5/07	Geoprobe	2	9 - 19	26.9	Sand, Gravel, Silt	21	
MW107	Monitoring Well	GEI	1/5/07	Geoprobe	2	2 - 12	15.1	Silt	21	
MW108	Monitoring Well	GEI	1/5/07	Geoprobe	2	2 - 12	13.1	Sand, Gravel, and Silt	12	
MW109	Monitoring Well	GEI	1/5/07	Geoprobe	2	3 - 13	24.7	Sand and Gravel	15.25	
MW110	Monitoring Well	GEI	1/8/07	Geoprobe	2	3 - 13	16.0	Silty Sand, Silt	16	
MW111	Monitoring Well	GEI	1/8/07	Geoprobe	2	4 - 14	19.4	Sand, Gravel, and Silt	16	
MW112	Monitoring Well	GEI	1/8/07	Geoprobe	2	3 - 10	18.6	Silty Sand, Silt	10	Dry
MW112-A	Monitoring Well	GEI	3/10/07	HSA	2	4 - 19	18.1	Sand, Gravel, and Silt	19	
MW113	Monitoring Well	GEI	2/15/07	Geoprobe	2	10 - 20	26.6	Sand, Gravel, and Silt	20	
MW114	Monitoring Well	GEI	2/15/07	Geoprobe	2	7 - 17	29.8	Sand, Gravel, and Silt	17	
MW115	Monitoring Well	GEI	2/21/07	HSA	2	10 - 25	27.3	Sand, Gravel, and Silt	25	
MW116	Monitoring Well	GEI	3/10/07	HSA/Air Rotary	2	5 - 15	13.0	Bedrock	15	
MW117S	Monitoring Well	GEI	6/20/07	HSA	2	5 - 20	22.2	Fill, Silt	20	
MW117T	Monitoring Well	GEI	6/22/07	Drive&Wash/Rock Core	2	35 - 45	22.2	Till	45	
MW117D	Monitoring Well	GEI	6/20/07	HSA/Drive & Wash	2	60 - 70	22.1	Bedrock	70	





**Table 5-1**  
**Soil Boring and Monitoring Well Summary**  
50 Tufts Street  
Somerville, Massachusetts

Location Name	Location Type	Installed By	Completion Date	Method	Well Diameter (in)	Well Screen Interval (ft bgs)	Ground Surface Elevation (ft NGVD)	Screened Strata	Total Depth (ft)	Comment
MW118S	Monitoring Well	GEI	7/2/07	HSA	2	3 - 14	15.7	Fill/Silt	14	
MW118T	Monitoring Well	GEI	6/28/07	HSA/Drive & Wash	2	39.5 - 49.5	15.7	Till	49.5	
MW118D	Monitoring Well	GEI	7/2/07	Drive&Wash/Rock Core	2	70 - 80	15.6	Bedrock	80	
MW119S	Monitoring Well	GEI	8/8/07	HSA	2	5 - 20	12.1	Fill/Silt	20	
MW119T	Monitoring Well	GEI	8/8/07	Drive & Wash	2	42 - 47	12.1	Till	48.5	
MW120S	Monitoring Well	GEI	8/8/07	HSA	2	5 - 20	12.9	Fill, Silt	20	
MW120TD	Monitoring Well	GEI	8/9/07	Drive & Wash	2	28 - 38	13.1	Bedrock	38	
MW201	Monitoring Well	GEI	7/11/07	Geoprobe	2	11 - 21	27.9	Sand and Gravel	21	
MW202	Monitoring Well	GEI	7/10/07	Geoprobe	2	10.5 - 20.5	28.1	Fill, Sand and Gravel	20.5	
MW203	Monitoring Well	GEI	7/11/07	Geoprobe	2	6 - 18	22.1	Till	18	
MW-CS-1	Monitoring Well	unknown	unknown	unknown	2	unknown	41.4	unknown	unknown	
MW DEP A	Pizeometer	DEP	5/30/07	Hand Tools	1	NA	unknown	unknown	unknown	
MW DEP B	Pizeometer	DEP	5/30/07	Hand Tools	1	NA	unknown	unknown	unknown	
MW DEP C	Pizeometer	DEP	5/30/07	Hand Tools	1	NA	unknown	unknown	unknown	

**General Notes:**

- Information on locations installed by GeolInsight and SHA based on boring and monitoring well logs prepared by GeolInsight and SHA, except for well diameters, which were measured in the field.
- in = inches.
- ft = feet.
- bgs = below ground surface.
- NGVD = National Geodetic Vertical Datum of 1929.
- SHA = Sanborn Head & Associates, Inc.
- NA = Not Applicable.
- Monitoring wells MW-1 through MW-2 were installed prior to SHAs investigation, which was conducted in 2002.
- HSA = Hollow Stem Auger.
- DEP = Massachusetts Department of Environmental Protection.





**Table 5-2**  
**Chemical Testing Results - Groundwater Samples**  
**50 Tufts Street**  
**Somerville, Massachusetts**

Sample Location: Well Screen Interval (ft bgs): Sample Date: Collected by:			SH-1 9-14 8/9/04 GeoInsight	SH-3 8-13 8/9/04 GeoInsight	SH-4 11-16 5/25/06 GEI	SH-MW1 10-30					SH-MW2 10-25						SH-MW3 10-24					
			7/8/02 SHA	5/23/06 GEI	10/4/06 GEI	1/16/07 GEI	4/12/07 GEI	7/8/02 SHA	8/16/04 GeoInsight	5/23/06 GEI	10/4/06 GEI	1/16/07 GEI	4/16/07 GEI	7/19/07 GEI	7/8/02 SHA	5/23/06 GEI	10/4/06 GEI	1/17/07 GEI	4/12/07 GEI			
Analyte	Method	Units																				
Volatile Organic Compounds (VOCs)																						
Acetone	8260B	ug/L	< 4000	< 2000	30	< 2500	< 5	< 5	< 5	< 5	< 250	< 2000	< 5	< 5	< 5	< 10	NT	< 2500	< 5	< 5	< 500	< 5
Benzene			< 200	< 100	< 0.5	< 250	< 0.5	0.61	< 0.5	0.33 J	< 25	< 100	< 0.5	< 0.5	< 0.5	< 1	NT	< 250	< 0.5	< 0.5	< 50	< 0.50
Bromoform			< 200	< 100	< 1	< 250	< 1	< 1	< 1	< 1	< 25	< 100	< 1	< 1	< 1	< 2	NT	< 250	< 1	< 1	< 100	< 1
Carbon tetrachloride			< 200	< 100	< 1	< 250	< 1	< 1	< 1	< 1	< 25	< 100	< 1	< 1	< 1	< 2	NT	< 250	< 1	< 1	< 100	< 1
Carbon disulfide			< 1000	< 500	< 5	< 2500	< 5	< 5	< 5	< 5	< 250	< 500	< 5	< 5	< 5	< 10	NT	< 2500	< 5	< 5	< 500	< 5
Chlorobenzene			< 200	< 100	< 1	< 250	< 1	0.52 J	< 1	< 1	< 25	< 100	< 1	< 1	< 1	< 2	NT	< 250	< 1	< 1	< 100	< 1
Chloroethane			< 400	< 200	< 2	< 500	< 2	< 2	< 2	< 2	< 50	< 200	< 2	< 2	< 2	< 4	< 2	< 500	< 2	< 2	< 100	< 2
Chloroform			< 200	< 100	13.3	< 380	2.1	4.6	1.7	3.4	< 38	< 100	< 1	< 1	< 1	< 2	NT	< 380	0.88 J	0.81 J	< 100	1.1
Chloromethane			< 400	< 200	< 2	< 1200	< 2	< 2	< 2	< 2	< 1200	< 200	< 2	< 2	< 2	< 4	NT	< 1200	< 2	< 2	< 200	< 2
Dichloroethane, 1,1-			< 200	< 100	15.9	< 380	11.4	12	8.5	12.7	< 38	< 100	1	20.9	5.7	< 2	12.4	< 380	21.6	36.5	< 100	24.5
Dichloroethane, 1,2-			< 200	< 100	103	< 250	< 1	< 1	< 1	< 1	< 25	< 100	< 1	< 1	< 1	< 2	< 1	< 250	< 1	< 2	< 200	< 1
Dichloroethene, 1,1-			< 200	< 100	556	< 250	11.7	19.3	9	24.4	< 25	< 100	10.1	45	9.8	2.1	23.8	< 250	91	84.4	< 100	91.3
Dichloroethene, cis-1,2-			< 200	< 100	16.6	< 250	2.1	7.3	11.2	2.7	< 25	< 100	3.9	45.7	14.7	1.4 J	26.1	< 250	37.2	102	< 100	39.8
Dichloroethene, trans-1,2-			< 200	< 100	< 1	< 380	< 1	< 1	< 1	< 1	< 38	< 100	< 1	< 1	< 1	< 2	< 1	< 380	< 1	1.1	< 100	< 1
Dichloropropane, 1,2-			< 200	< 100	< 2	< 880	< 2	< 2	< 2	< 2	< 88	< 100	< 2	< 2	< 2	< 4	NT	< 880	< 2	< 2	< 200	< 2
Dioxane, 1,4-			NT	NT	57700	NT	< 25	< 25 R	< 25	< 25	NT	NT	< 25	< 25 R	< 25	< 50	NT	NT	< 25	< 25 R	< 2500	< 25
Ethylbenzene			< 200	< 100	< 1	< 250	< 1	< 1	< 1	< 1	< 25	< 100	< 1	< 1	< 1	< 2	NT	< 250	< 1	180	< 1	< 1
Hexanone, 2-			< 2000	< 1000	5.3	< 2500	< 5	< 5	< 5	< 5	< 250	< 1000	< 5	< 5	< 5	< 10	NT	< 2500	< 5	< 5	< 500	< 5
Isopropylbenzene			< 200	< 100	< 5	< 250	< 5	< 5	< 5	< 5	< 25	< 100	< 5	< 1	< 5	< 10	NT	< 250	< 5	< 5	< 500	< 5
Methyl tert-butyl ether			< 200	< 100	< 1	< 500	< 1	0.71 J,T	< 1	0.74 J,H	< 50	< 100	< 1	8.7 T	1.4	< 2	NT	< 500	5.1	8.2 T	< 100	2.4 H
Methylene chloride			< 2000	< 1000	12.2	< 2500	< 2	< 2	< 2	< 2	< 250	< 1000	< 2	< 2	< 2	2.3 J	NT	< 2500	< 2	< 2	< 200	< 2
Naphthalene			< 200	< 500	< 5	< 1200	< 5	< 5	< 5	< 5	< 120	< 100	< 5	< 1	< 5	< 10	NT	< 1200	< 5	< 5	392 J	< 5
Propylbenzene, n-			< 200	< 100	< 5	< 250	< 5	< 5	< 5	< 5	< 25	< 100	< 5	< 5	< 5	< 10	NT	< 250	< 5	< 5	< 500	< 5
Tetrachloroethane, 1,1,1,2-			< 200	< 100	40.4	< 250	< 5	< 5	< 5	< 5	< 25	< 100	< 5	< 5	< 5	< 10	< 1	< 250	< 5	< 5	< 500	< 5
Tetrachloroethene			49700	19500	7240	21000	16200	28300	31700 F+	48900	2000	7170	1730	7190	2880 F+	726	3320	26000	16900	28300	29700	34000
Tetrahydrofuran			NT	NT	< 10	NT	< 10	< 10	< 10	< 10	NT	NT	< 10	< 10	< 10	< 20	NT	NT	< 10	< 10	< 1000	< 10
Tert-Amyl-Methyl-Ether			NT	NT	1.9 J	NT	NT	< 2	< 2	< 2	NT	NT	< 2	< 2	< 2	< 4	NT	NT	< 2	< 2	< 200	< 2
Toluene			< 200	< 100	1.8	< 380	0.61 J	0.47 J	< 1	0.36 J	< 38	< 100	< 1	< 1	< 1	< 2	NT	< 380	< 1	< 1	< 100	< 1
Trichloroethane, 1,1,1-			1150	2070	7610	< 250	34.5	69.7 T	31.4	27.9 H	660	1550	158	1330	360	44.1	539	1200	989	1680	806	621 H,M
Trichloroethane, 1,1,2-			< 200	< 100	172	< 380	< 1	< 1	< 1	< 1	< 38	< 100	< 1	< 1	< 1	< 2	< 1	< 380	< 1	< 1	< 100	< 1
Trichloroethene			906	1440	7580	< 500	141	317	141	159	190	572	92.8	486	171	26.5	354	870	482	1030	709	1030
Trimethylbenzene, 1,2,4-			< 200	< 100	< 5	< 1200	< 5	< 5	< 5	< 5	< 120	< 100	< 5	< 5	< 5	< 10	NT	< 1200	< 5	< 5	306 J	< 5
Trimethylbenzene, 1,3,5-			< 200	< 100	< 5	< 1200	< 5	< 5	< 5	< 5	< 120	< 100	< 5	< 5	< 5	< 10	NT	< 1200	< 5	< 5	70.2 J	< 5
Vinyl chloride			< 200	< 100	< 1	< 500	< 1	< 1	< 1	0.55 J	< 50	< 100	< 1	< 1	< 1	< 2	< 1	< 500	< 1	< 1	< 100	0.83 J
Xylene, m,p-			< 400	< 200	< 1	< 250	< 1	< 1	< 1	< 1	< 25	< 200	< 1	< 1	< 1	< 2	NT	< 250	< 1	< 1	484	< 1
Xylene, o-			< 200	< 100	< 1	< 250	< 1	< 1	< 1	< 1	< 25	< 100	< 1	< 1	< 1	< 2	NT	< 250	< 1	< 1	< 100	< 1
Xylene, Total			< 400	< 200	< 1	< 250	< 1	< 1	< 1	< 1	< 25	< 200	< 1	< 1	< 1	< 2	NT	< 250	< 1	< 1	543	< 1
Total VOCs			51756	23010	81098.4	21000	16403.41	28732.21	31902.8	49102.2	2850	9292	1995.8	9126.3	3442.6	798.7	4275.3	28070	18526.78	31243.01	33190.2	35186.7
Metals																						
Arsenic	6010B	ug/L	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	< 10	NT
Iron																					255	
Other																						
Methane	8015	ug/L	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	< 10	NT
Ethane	8015																				< 10	
Ethene	8015																				< 10	
Alkalinity, Total as CaCO3	EPA 310.1																				208000	
Chloride	EPA 325.3																				362000	
Nitrogen, Nitrate	EPA 353.2																				1900	
Nitrogen, Nitrate + Nitrite	EPA 353.2																				1900	
Nitrogen, Nitrite	EPA 354.1																				30	
Sulfate	EPA 375.4																				62500	
Sulfide	EPA 376.1																				< 2000	
Surfactants, MBAS as LAS	EPA 425.1																				< 100	
Total Organic Carbon	EPA 415.1																				< 1000	

**General Notes:**

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  2. "<" = The analyte was not detected at a concentration
  3. ft bgs = feet below ground surface.
  4. ug/L = micrograms per liter.
  5. SHA = Sanborn Head & Associates.
  6. FD = Field Duplicate Sample.
  7. NT = Not Tested.

**Qualifying Note:**

- Qualifying Note:**
- |     |  |
|-----|--|
| E   | The reported value is estimated; reported from undiluted sample run due to sample non-homogeneity.                         |
| F+  | The result has a high bias due to matrix spike recovery above upper control limits.  |
| F-  | The result has a low bias due to matrix spike recovery below lower control limits.   |
| G   | The result is estimated due to duplicate precision outside control limits.   |
| H   | The result has a high bias due to calibration verification standard recovery above the upper control limits.               |
| J   | The reported result is below the laboratory reporting limit and is estimated.  |
| J + | The reported result is estimated.  |
| M   | The result is above the calibration range and is estimated.  |
| R   | The result is rejected due to gross exceedence of minimum response factor criteria.  |
| T   | The reported value is estimated due to Continuing Calibration Check standard percent difference outside of control limits. |





Table 5-2  
Chemical Testing Results - Groundwater Samples  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Well Screen Interval (ft bgs): Sample Date: Collected by:			MW-1 unknown					MW-3 unknown					MW-CS-1 unknown	GEO-1 5-20						GEO-2 5-20				
Analyte	Method	Units	7/1/02 SHA	8/9/04 Geolinsight	5/23/06 GEI	1/17/07 GEI	4/17/07 GEI	7/1/02 SHA	8/9/04 Geolinsight	5/23/06 GEI	1/17/07 GEI	4/17/07 GEI	5/23/07 GEI	8/16/04 Geolinsight	5/23/06 GEI	10/5/06 GEI	1/17/07 GEI	1/17/07 (FD) GEI	4/12/07 GEI	8/16/04 Geolinsight	5/23/06 GEI	10/5/06 GEI	1/17/07 GEI	4/12/07 GEI
Volatile Organic Compounds (VOCs)	8260B	ug/L																						
Acetone			< 50000	< 40000	40	36.1	< 2500	< 2500	< 2000	< 5	< 5	< 130	< 5.0	< 400	< 5	< 5	< 5	< 5	9.7	487	< 5	< 5	< 25	< 5
Benzene			< 5000	< 2000	2	< 0.5	< 250	< 250	< 100	0.37 J	0.71	< 13	< 0.50	< 20	< 0.5	< 0.5	< 0.5	< 0.5	0.27 J	< 5	< 0.5	< 0.5	< 2.5	< 0.50
Bromoform			< 5000	< 2000	< 1	< 1	< 500	< 250	< 100	< 1	< 1	< 25	< 1.0	< 20	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 5	< 1
Carbon tetrachloride			< 5000	< 2000	19	22.4	< 500	< 250	< 100	< 1	< 1	< 25	< 1.0	< 20	3.6	1.4	2.3	5.4	< 5	< 1	< 1	< 1	< 5	< 1
Carbon disulfide			< 50000	< 10000	< 5	< 5	< 2500	< 2500	< 500	< 5	< 5	< 130	0.54 J	< 100	< 5	< 5	< 5	< 5	< 5	< 25	< 5	< 5	4.5 J	< 5
Chlorobenzene			< 5000	< 2000	1.1	1.2	< 500	< 250	< 100	< 1	0.52 J	< 25	< 1.0	< 20	0.76 J	0.86 J	0.76 J	0.84 J	0.77 J	< 5	< 1	< 1	< 5	< 1
Chloroethane			< 10000	< 4000	< 2	< 2	< 1000	< 500	< 200	< 2	< 2	< 50	< 2.0	< 40	< 2	< 2	< 2	< 2	< 2	< 10	< 2	< 2	< 10	< 2
Chloroform			< 7500	< 2000	3.7	1.6	< 500	< 380	< 100	2.1	3.4	< 25	< 1.0	< 20	< 1	< 1	0.60 J	0.61 J	1.5	< 5	< 1	< 1	< 5	< 1
Chloromethane			< 25000	< 4000	< 2	14.6	< 1000	< 1200	< 200	< 2	< 2	< 50	< 2.0	< 40	< 2	3.7	< 2	1.8 J	6.2	< 10	< 2	< 2	< 10	< 2
Dichloroethane, 1,1-			< 7500	< 2000	59.8	59.9	< 500	< 380	< 100	< 1	< 1	< 25	< 1.0	< 20	4.3	2.9	5.4	5.6	10.6	< 5	2.2	2	< 25	2.5
Dichloroethane, 1,2-			< 5000	< 2000	4	< 2	< 500	< 250	< 100	< 1	< 1	< 25	< 1.0	< 20	< 1	< 1	< 1	< 1	1.3	< 5	< 1	< 1	< 5	< 1
Dichloroethene, 1,1-			< 5000	< 2000	11500	1260	2290	< 250	< 100	6.9	5.6	< 25	< 1.0	39.8	989	1330 E	247	241	8990	23.2	14.2	26.3	25.2	11.5
Dichloroethene, cis-1,2-			< 5000	< 2000	24.3	7.7	< 500	< 250	< 100	< 1	1.9	< 25	< 1.0	< 20	4.3	2.3	3.3	< 1	8.7	< 5	< 1	1.6	■	< 1
Dichloroethene, trans-1,2-			< 7500	< 2000	< 1	< 1	< 500	< 380	< 100	< 1	< 1	< 25	< 1.0	< 20	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 5	< 1
Dichloropropane, 1,2-			< 18000	< 2000	4.5	< 2	< 1000	< 880	< 100	< 2	, 2	< 50	< 2.0	< 20	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 10	< 2
Dioxane, 1,4-			NT	NT	< 25	< 25	< 13000	NT	NT	< 25	< 25	< 630	< 25	NT	< 25	< 25 R	< 25	< 25	< 25	NT	< 25	< 25 R	< 130	< 25
Ethylbenzene			< 5000	< 2000	2.8	4.4	< 500	< 250	< 100	< 1	< 1	< 25	< 1.0	< 20	< 1	< 1	< 1	< 1	0.41 J	< 5	< 1	< 1	3.1 J	< 1
Hexanone, 2-			< 50000	< 20000	< 5	< 5	< 2500	< 2500	< 1000	< 5	< 5	< 130	< 5.0	< 200	< 5	< 5	< 5	< 5	< 5	< 50	< 5	< 5	< 25	< 5
Isopropylbenzene			< 5000	< 2000	< 5	0.84 J	< 2500	< 250	< 100	< 5	< 5	< 130	< 5.0	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 5
Methyl tert-butyl ether			< 10000	< 2000	< 1	< 1	< 500	< 500	< 100	< 1	< 1	< 25	66.4	< 20	64.2	5.3 T	2.5	2.7	6.9 H	37.6	79.9	12.8 T	9.8	16.5
Methylene chloride			< 50000	< 20000	< 2	< 2	< 1000	< 2500	< 1000	< 2	< 2	71.5	< 2.0	< 200	< 2	< 2	< 2	< 2	< 2	< 50	< 2	< 2	< 10	< 2
Naphthalene			< 5000	< 2000	< 5	2.4 J	< 2500	< 1200	< 100	< 5	< 5	< 130	< 5.0	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	8.3 J	< 5
Propylbenzene, n-			< 5000	< 2000	0.42 J	1.8 J	< 2500	< 250	< 100	< 5	< 5	< 130	< 5.0	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 5
Tetrachloroethane, 1,1,1,2-			< 5000	< 2000	38.1	22.8	< 2500	< 250	< 100	1.9 J	4.4 J	< 130	< 5.0	< 20	5.7	3 J	5.7	5.8	15.6	< 5	< 5	< 5	< 25	< 5
Tetrachloroethene			52000	24200	34400	74900	49600	16000	16200	22100	51900	6550	< 1.0	1880	18600	19500	17300	18000	48500	285	131	69■	1420	120
Tetrahydrofuran			NT	NT	< 10	< 10	< 5000	NT	NT	< 10	< 10	< 250	< 10	NT	< 10	< 10	< 10	< 10	< 10	NT	< 10	< 10	< 50	< 10
Tert-Amyl-Methyl-Ether			NT	NT	< 2	< 2	< 1000	NT	NT	< 2	< 2	< 50	< 2.0	NT	< 2	< 2	< 2	< 2	< 2	NT	< 2	< 2	< 10	< 2
Toluene			< 7500	< 2000	19.6	15.3	< 500	< 380	< 100	0.62 J	< 1	< 25	< 1.0	< 20	1.2	0.72 J	1.1	0.99	2.1	< 5	< 1	< 1	3.4 J	< 1
Trichloroethane, 1,1,1-			290000	112000	255000	135000	151000	< 250	< 100	39.1	68.7	11.1 J	< 1.0	1720	19100	9620	13300	14200	42500 H	490	125	376	867	147 H
Trichloroethane, 1,1,2-			< 7500	< 2000	85.8	16.2	< 500	< 380	< 100	< 1	< 1	< 25	< 1.0	< 20	< 1	< 1	0.94 J	0.99 J	3.8	< 5	< 1	< 1	< 5	< 1
Trichloroethene			220000	128000	175000	120000	103000	< 250	< 100	86.6	247	13.8 J	< 1.0	898	10000	5530	9090	9660	30600	60	27.3	170	602	36
Trimethylbenzene, 1,2,4-			< 25000	< 2000	1.3 J	4.2 J	< 2500	< 1200	< 100	< 5	< 5	< 130	< 5.0	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	4.7 J	< 5
Trimethylbenzene, 1,3,5-			< 25000	< 2000	1.3 J	4.8 J	< 2500	< 1200	< 100	< 5	< 5	< 130	< 5.0	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 5
Vinyl chloride			< 10000	< 2000	< 1	1.2	< 500	< 500	< 100	< 1	< 1	< 25	< 1.0	< 20	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 5	< 1
Xylene, m,p-			< 5000	< 4000	4.8	5.9	< 500	< 250	< 200	< 1	< 1	< 25	< 1.0	< 40	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 1	11.2	< 1
Xylene, o-			< 5000	< 2000	9.2	13.8	< 500	< 250	< 100	< 1	< 1	< 25	< 1.0	< 20	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 5	< 1
Xylene, Total			< 5000	< 4000	14	19.7	< 500	< 250	< 200	< 1	< 1	< 25	< 1.0	< 40	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 1	14.2	< 1
Total VOCs			562000	264200	476235.72	331416.84	305890	16000	16200	22237.59	52227.31	6621.5	66.4	4537.8	48773.06	34842.18	39959.6	42122.63	88144.9	1382.8	379.6	1281.7	2982.4	186.5
Metals	6010B	ug/L	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT		NT	NT	NT	NT	NT	NT	NT	NT	NT		NT
Arsenic																							< 10	
Iron																							< 100	
Other		ug/L	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT		NT	NT	NT	NT	NT	NT	NT	NT	NT		NT
Methane	8015																						< 10	
Ethane	8015																						< 10	
Ethene	8015																						< 10	
Alkalinity, Total as CaCO <sub>3</sub>	EPA 310.1																						104000	
Chloride	EPA 325.3																						1310000	
Nitrogen, Nitrate	EPA 353.2																						7000	
Nitrogen, Nitrate + Nitrite	EPA 353.2																						7000	
Nitrogen, Nitrite	EPA 354.1																						< 10	
Sulfate	EPA 375.4																						88000	
Sulfide	EPA 376.1																						< 2000	
Surfactants, MBAS as LAS	EPA 425.1																						< 100	
Total Organic Carbon	EPA 415.1																						< 1000	

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  2. "< " = The analyte was not detected at a concentration
  3. ft bgs = feet below ground surface.
  4. ug/L = micrograms per liter.
  5. SHA = Sanborn Head & Associates.
  6. FD = Field Duplicate Sample.
  7. NT = Not Tested.

- Qualifying Note:**
- E The reported value is estimated; reported from undiluted sample run due to sample non-homogeneity.
- F+ The result has a high bias due to matrix spike recovery above upper control limits.
- F- The result has a low bias due to matrix spike recovery below lower control limits.
- G The result is estimated due to duplicate precision outside control limits.
- H The result has a high bias due to calibration verification standard recovery above the upper control limits.
- J The reported result is below the laboratory reporting limit and is estimated.
- J + The reported result is estimated.
- M The result is above the calibration range and is estimated.
- R The result is rejected due to gross exceedence of minimum response factor criteria.
- T The reported value is estimated due to Continuing Calibration Check standard percent difference outside of control limits.





Table 5-2  
Chemical Testing Results - Groundwater Samples  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Well Screen Interval (ft bgs): Sample Date: Collected by:			GEO-3 5-20								GEO-4 4-19					GEO-5 5-20					GEO-6 5-20			
			8/16/04	5/24/06	5/24/06(FD)	10/4/06	10/4/06 (FD)	1/16/07	4/13/07	8/16/04	5/24/06	10/4/06	1/16/07	4/16/07	8/16/04	5/24/06	10/4/06	1/16/07	4/16/07	8/16/04	5/24/06	10/4/06	1/16/07	
			Geolnsight	GEI	GEI	GEI	GEI	GEI	GEI	Geolnsight	GEI	GEI	GEI	GEI	Geolnsight	GEI	GEI	GEI	GEI	Geolnsight	GEI	GEI	GEI	
Analyte	Method	Units																						
Volatile Organic Compounds (VOCs)			ug/L																					
Acetone	8260B		< 1000	< 5	< 5	< 5	< 5	< 5	< 5	< 2000	< 5	< 5	< 100	< 50	< 2000	< 5	< 5	< 250	< 5	< 200	< 5	< 5	< 5	
Benzene			< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 100	< 0.5	< 0.5	< 10	< 5	< 100	< 0.5	< 0.5	< 25	< 0.5	< 10	< 0.5	< 0.5	< 0.5	
Bromoform			< 50	< 1	< 1	< 1	< 1	< 1	< 1	< 200	< 1	< 1	< 20	< 10	< 100	< 1	< 1	< 50	< 1	< 10	< 1	< 1	< 1	
Carbon tetrachloride			< 50	< 1	< 1	< 1	< 1	< 1	< 1	< 100	< 1	< 1	< 20	< 10	< 100	< 1	< 1	< 50	< 1	< 10	< 1	< 1	< 1	
Carbon disulfide			< 250	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 100	< 50	< 500	< 5	< 5	< 250	< 5	< 50	< 5	< 5	< 5	
Chlorobenzene			< 50	< 1	< 1	< 1	< 1	< 1	< 1	< 100	< 1	< 1	< 20	< 10	< 100	< 1	< 1	< 50	< 1	< 10	< 1	< 1	< 1	
Chloroethane			< 100	< 2	< 2	< 2	< 2	< 2	< 2	< 200	< 2	< 2	< 40	< 20	< 200	< 2	< 2	< 100	< 2	< 20	< 2	< 2	< 2	
Chloroform			< 50	< 1	< 1	< 1	< 1	< 1	< 1	< 100	< 1	2.5	< 20	< 10	< 100	< 1	0.62 J	< 50	< 1	< 10	< 1	< 1	< 1	
Chloromethane			< 100	< 2	< 2	< 2	< 2	< 2	< 2	< 200	< 2	< 2	< 40	< 20	< 200	< 2	< 2	< 100	< 2	< 20	< 2	< 2	< 2	
Dichloroethane, 1,1-			< 50	< 1	< 1	11.6	11.6	2.6	< 1	< 100	2.7	7.1	< 20	< 10	< 100	3	9.7	< 50	< 1	< 10	2	4.4	1.7	
Dichloroethane, 1,2-			< 50	< 1	< 1	< 1	< 1	< 1	< 1	< 100	< 1	< 1	< 20	< 10	< 100	< 1	< 1	< 50	< 1	< 10	< 1	< 1	< 1	
Dichloroethene, 1,1-			108	< 1	< 1	59.3	59.1	11.5	1.4	< 100	6.1	17.8	< 20	< 10	< 100	8.9	32.7	< 50	< 1	< 10	4.6	11	4.4	
Dichloroethene, cis-1,2-			< 50	< 1	< 1	2.8	2.6	1.2	< 1	< 100	6.3	16.7	< 20	5.5 J	< 100	12.5	35.2	< 50	< 1	14.8	9.1	15.4	7.7	
Dichloroethene, trans-1,2-			< 50	< 1	< 1	< 1	< 1	< 1	< 1	< 100	< 1	< 1	< 20	< 10	< 100	< 1	< 1	< 50	< 1	< 10	< 1	< 1	< 1	
Dichloropropane, 1,2-			< 50	< 2	< 2	< 2	< 2	< 2	< 2	< 100	< 2	< 2	< 40	< 20	< 100	< 2	< 2	< 100	< 2	< 10	< 2	< 2	< 2	
Dioxane, 1,4-			NT	< 25	< 25	< 25 R	< 25 R	< 25 R	< 25	NT	< 25	< 25 R	< 500	< 250	NT	< 25	< 25 R	< 1300	< 25	NT	< 25	< 25 R	< 25	
Ethylbenzene			< 50	< 1	< 1	< 1	< 1	< 1	< 1	< 100	< 1	< 1	< 20	< 10	< 100	< 1	< 1	< 50	< 1	< 10	< 1	< 1	< 1	
Hexanone, 2-			< 500	< 5	< 5	< 5	< 5	< 5	< 5	< 1000	< 5	< 5	< 100	< 50	< 1000	< 5	< 5	< 250	< 5	< 100	< 5	< 5	< 5	
Isopropylbenzene			< 50	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 100	< 50	< 100	< 5	< 5	< 250	< 5	< 10	< 5	< 5	< 5	
Methyl tert-butyl ether			< 50	< 1	< 1	1.2 T	1.1 T	< 1	< 1	< 100	< 1	1.5 T	< 20	< 10	< 100	1.3	3.3 T	< 50	< 1	< 10	1.3	1.9 T	1.2	
Methylene chloride			< 500	< 2	< 5	< 5	< 5	< 5	< 2	< 1000	< 2	< 2	< 40	< 20	< 1000	< 2	< 2	< 100	< 2	< 100	< 2	< 2	< 2	
Naphthalene			< 50	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 100	< 50	< 100	< 5	< 5	< 250	< 5	< 10	< 5	< 5	< 5	
Propylbenzene, n-			< 50	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 100	< 50	< 100	< 5	< 5	< 250	< 5	< 10	< 5	< 5	< 5	
Tetrachloroethane, 1,1,1,2-			< 50	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	0.84 J	< 100	< 50	< 100	< 5	< 5	< 250	< 5	< 10	< 5	< 5	< 5	
Tetrachloroethene			4020	162	157	2720	2340	529	93.2	12900	6690	24100	16700	8240	14400	2440	12900	254 F+	17.9	782	675	1980	632	
Tetrahydrofuran			NT	< 10	< 10	< 10	< 10	< 10	< 10	NT	< 10	< 10	< 200	< 100	NT	< 10	< 10	< 500	< 10	NT	< 10	< 10	< 10	
Tert-Amyl-Methyl-Ether			NT	< 2	< 2	< 2	< 2	< 2	< 2	NT	< 2	< 2	< 40	< 20	NT	< 2	< 2	< 100	< 2	NT	< 2	< 2	< 2	
Toluene			< 50	< 1	< 1	< 1	< 1	< 1	< 1	< 100	< 1	< 1	< 20	< 10	< 100	< 1	< 1	< 50	< 1	< 10	< 1	< 1	< 1	
Trichloroethane, 1,1,1-			204	4	4.4	78.2 T	77.2 T	16.2	< 1	< 100	1170	321 T	113	70.9	< 100	646	652	< 50	< 1	27.8	42.5	77.2 T	33.7	
Trichloroethane, 1,1,2-			< 50	< 1	< 1	< 1	< 1	< 1	< 1	< 100	< 1	< 1	< 20	< 10	< 100	< 1	< 1	< 50	< 1	< 10	< 1	< 1	< 1	
Trichloroethene			507	14.4	14.1	209	207	70.2	10	720	86.8	235	129	74.8	404	146	446	< 50	< 1	122	78.8	131	75.3	
Trimethylbenzene, 1,2,4-			< 50	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 100	< 50	< 100	< 5	< 5	< 250	< 5	< 10	< 5	< 5	< 5	
Trimethylbenzene, 1,3,5-			< 50	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 100	< 50	< 100	< 5	< 5	< 250	< 5	< 10	< 5	< 5	< 5	
Vinyl chloride			< 50	< 1	< 1	< 1	< 1	< 1	< 1	< 100	< 1	< 1	< 20	< 10	< 100	< 1	< 1	< 50	< 1	< 10	< 1	< 1	< 1	
Xylene, m,p-			< 100	< 1	< 1	< 1	< 1	< 1	< 1	< 200	< 1	< 1	< 20	< 10	< 200	< 1	< 1	< 50	< 1	< 20	< 1	< 1	< 1	
Xylene, o-			< 50	< 1	< 1	< 1	< 1	< 1	< 1	< 100	< 1	< 1	< 20	< 10	< 100	< 1	< 1	< 50	< 1	< 20	< 1	< 1	< 1	
Xylene, Total			< 100	< 1	< 1	< 1	< 1	< 1	< 1	< 200	< 1	< 1	< 20	< 10	< 200	< 1	< 1	< 50	< 1	< 20	< 1	< 1	< 1	
Total VOCs			4839	180.4	175.5	3082.1	2698.6	630.7	104.6	14790	6904.9	24702.44	16942	8385.7	15450	2857.7	14079.52	254	17.9	946.6	813.3	2220.9	756	
Metals	6010B	ug/L	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	< 10	
Arsenic																							< 100	
Iron																								
Other																								
Methane	8015																						< 10	
Ethane	8015																						< 10	
Ethene	8015																						134000	
Alkalinity, Total as CaCO <sub>3</sub>	EPA 310.1																						825000	
Chloride	EPA 325.3																						3500	
Nitrogen, Nitrate	EPA 353.2																						3500	
Nitrogen, Nitrate + Nitrite	EPA 353.2																							

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  2. "< " = The analyte was not detected at a concentration
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  - J+ The reported result is estimated.
  - M The result is above the calibration range and is estimated.
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  - T The reported value is estimated due to Continuing Calibration Check standard percent difference outside of control limits.





Table 5-2  
Chemical Testing Results - Groundwater Samples  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Well Screen Interval (ft bgs):			GEO-6 (continued) 5-20			MW101 9-19					MW102 6-16					MW103 6-16					MW104 5-15			
Sample Date: Collected by:			1/16/07 (FD) GEI	4/16/07 GEI	4/16/07 (FD) GEI	5/24/06 GEI	10/5/06 GEI	1/17/07 GEI	4/13/07 GEI	4/13/07 (FD) GEI	5/24/06 GEI	10/5/06 GEI	1/16/07 GEI	4/13/07 GEI	7/18/07 GEI	5/24/06 GEI	8/7/06 GEI	10/5/06 GEI	1/16/07 GEI	1/18/07 GEI	4/13/07 GEI	5/23/06 GEI	10/5/06 GEI	1/16/07 GEI
Analyte	Method	Units																						
Volatile Organic Compounds (VOCs)			8260B	ug/L																				
Acetone			< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NT	< 5	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5
Benzene			< 0.5	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NT	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5	< 0.5	0.6	< 0.5
Bromoform			< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NT	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1
Carbon tetrachloride			< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1
Carbon disulfide			0.81 J	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NT	< 5	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5
Chlorobenzene			< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NT	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1
Chloroethane			< 2	< 4	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 10	2.7	10.3	6.1
Chloroform			< 1	< 2	< 1	1.8	< 1	< 1	< 1	1.8	< 1	< 1	< 1	< 1	NT	< 1	< 1	< 1	0.65 J	0.62 J	< 5	< 1	< 1	< 1
Chloromethane			< 2	< 4	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	NT	< 2	< 2	< 2	< 2	< 2	< 10	< 2	< 2	< 2
Dichloroethane, 1,1-			1.6	0.92 J	1.1	< 1	< 1	< 1	< 1	1.6	< 1	0.88 J	< 1	< 1	0.42 J	27.2	3.7	13	11.5	10.1	7.9	33	98.9	57.1
Dichloroethane, 1,2-			< 1	< 2	< 1	< 1	< 1	< 1	3.9 G	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1
Dichloroethene, 1,1-			3.2	2.8	3.8	8.7	21.1	14.1	< 1	4.6 G	6.3	50.2	30	< 1	23.6	13.4	2	6.5	4.3	4.3	8	3.3	9.4	2.9
Dichloroethene, cis-1,2-			6.9	5.3	6.3	< 1	< 1	1.3	< 1	2.1 G	< 1	< 1	< 1	< 1	< 1	< 1	3	2.5	< 1	< 1	< 5	198	435	244
Dichloroethene, trans-1,2-			< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5	2.2	9.3	6.2	
Dichloropropane, 1,2-			< 2	< 4	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	NT	< 2	< 2	< 2	< 2	< 2	< 10	< 2	< 2	< 2
Dioxane, 1,4-			< 25	< 50	< 25	< 25	< 25 R	< 25	< 25	< 25	< 25	< 25 R	< 25	< 25	NT	< 25	< 25	< 25 R	< 25	< 25	< 130	< 25	< 25 R	< 25
Ethylbenzene			< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NT	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1
Hexanone, 2-			< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NT	< 5	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5
Isopropylbenzene			< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NT	< 5	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5
Methyl tert-butyl ether			1.2	0.80 J	0.81 J	< 1	< 1	< 1	< 1	< 1	< 1	4.5 T	2.7	< 1	NT	< 1	< 1	0.65 J;T	< 1	< 1	< 5	< 1	10 T	1
Methylene chloride			1.3	2.5 J	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	NT	< 2	< 2	< 2	< 2	< 2	< 10	< 2	< 2	< 2
Naphthalene			< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NT	< 5	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5
Propylbenzene, n-			< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NT	< 5	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5
Tetrachloroethane, 1,1,1,2-			< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 1	< 5	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5
Tetrachloroethene			594 F+	618	497	163	171	192	94	90.7	200	898	692	20.3	524	2600	592	1510	1200 F+	1250 F-	1510	60.4	160	29.3
Tetrahydrofuran			< 10	< 20	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NT	< 10	< 10	< 10	< 10	< 10	< 50	< 10	< 10	< 10
Tert-Amyl-Methyl-Ether			< 2	< 4	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	NT	< 2	< 2	< 2	< 2	< 2	< 10	< 2	< 2	< 2
Toluene			< 1	< 2	< 1	< 1	< 1	0.38 J	< 1	< 1	< 1	< 1	< 1	< 1	NT	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1
Trichloroethane, 1,1,1-			25.3	21.2	26.8	110	146	131	50.5 H	43 H	< 1	65.7 T	32.6	< 1	26.3	34	4.4	14.4 T	17.6	21	< 5	21	138	23.2
Trichloroethane, 1,1,2-			< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1
Trichloroethene			56.5	55.5	70.5	50.5	30.2	38.4	47.2	45.7	15.6	89.1	57	2	46.1	109	24	60.4	37	38	58.7	63.4	110	49.1
Trimethylbenzene, 1,2,4-			< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NT	< 5	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5
Trimethylbenzene, 1,3,5-			< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NT	< 5	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5
Vinyl chloride			< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5	23.7	36.4	47.4
Xylene, m,p-			< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NT	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1
Xylene, o-			< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NT	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1
Xylene, Total			< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NT	< 1	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1
Total VOCs			690.81	702.8	605.5	334	368.3	377.18	141.2	139.8	221.9	1108.38	814.3	22.3	620	2783.6	629.1	1607.45	1271.05	74.02	1584.6	407.7	1007.9	466.3
Metals			6010B	ug/L																				
Arsenic			< 10	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT		NT	NT	NT	NT	< 10	NT	NT	NT	NT
Iron			< 100																	< 100				
Other				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT										
Methane	8015	ug/L	< 10																	< 10				
Ethane	8015		< 10																	< 10				
Ethene	8015		< 10																	< 10				
Alkalinity, Total as CaCO3	EPA 310.1		133000																	53500				
Chloride	EPA 325.3		825000																	675000				
Nitrogen, Nitrate	EPA 353.2		3500																	8900				
Nitrogen, Nitrate + Nitrite	EPA 353.2		3500																	8900				
Nitrogen, Nitrite	EPA 354.1		< 10																	16				
Sulfate	EPA 375.4		45500																	65700				
Sulfide	EPA 376.1		< 2000																	< 2000				
Surfactants, MBAS as LAS	EPA 425.1		< 100																	< 100				
Total Organic Carbon	EPA 415.1		< 1000																	1700				

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  2. \* < \* = The analyte was not detected at a concentration
  3. ft bgs = feet below ground surface.
  4. ug/L = micrograms per liter.
  5. SHA = Sanborn Head & Associates.
  6. FD = Field Duplicate Sample.
  7. NT = Not Tested.

- Qualifying Note:**
- E The reported value is estimated; reported from undiluted sample run due to sample non-homogeneity.
  - F+ The result has a high bias due to matrix spike recovery above upper control limits.
  - F- The result has a low bias due to matrix spike recovery below lower control limits.
  - G The result is estimated due to duplicate precision outside control limits.
  - H The result has a high bias due to calibration verification standard recovery above the upper control limits.
  - J The reported result is below the laboratory reporting limit and is estimated.
  - J+ The reported result is estimated.
  - M The result is above the calibration range and is estimated.
  - R The result is rejected due to gross exceedence of minimum response factor criteria.
  - T The reported value is estimated due to Continuing Calibration Check standard percent difference outside of control limits.





Table 5-2  
Chemical Testing Results - Groundwater Samples  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Well Screen Interval (ft bgs): Sample Date: Collected by:			MW104 (continued) 5-15		MW105 19-29					MW106 9-19			MW107 2-12			MW108 2-12			MW109 3-13		MW110 3-13		
			4/13/07 GEI	7/19/07 GEI	5/24/06 GEI	10/5/06 GEI	1/17/07 GEI	4/16/07 GEI	7/19/07 GEI	1/18/07 GEI	4/13/07 GEI	7/18/07 GEI	1/18/07 GEI	4/13/07 GEI	7/18/07 GEI	1/18/07 GEI	4/16/07 GEI	7/18/07 GEI	1/18/07 GEI	4/16/07 GEI	1/18/07 GEI	4/17/07 GEI	
Analyte	Method	Units																					
Volatile Organic Compounds (VOCs)			ug/L																				
Acetone	8260B	ug/L	< 5	NT	< 5	< 5	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	< 5	< 5	
Benzene			< 0.5	NT	< 0.5	< 0.5	< 0.5	< 0.5	NT	< 0.5	< 0.50	NT	< 0.5	< 0.5	NT	< 0.5	< 0.5	NT	< 0.5	< 0.5	< 0.5	< 0.5	
Bromoform			< 1	NT	< 1	< 1	< 1	< 1	NT	< 1	< 1	NT	0.75 J	< 1	NT	< 1	< 1	NT	< 1	< 1	< 1	< 1	
Carbon tetrachloride			< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Carbon disulfide			< 5	NT	< 5	< 5	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	< 5	< 5	
Chlorobenzene			< 1	NT	< 1	< 1	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	< 1	< 1	
Chloroethane			4.7	6.9	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	
Chloroform			< 1	NT	< 1	< 1	< 1	< 1	NT	1.1	1.2	NT	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	< 1	< 1	
Chloromethane			< 2	NT	< 2	< 2	< 2	< 2	NT	< 2	< 2	NT	< 2	< 2	NT	< 2	< 2	NT	< 2	< 2	< 2	< 2	
Dichloroethane, 1,1-			46.8	68.3	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	4.6	4.3	0.52 J	< 1	< 1	< 1	1.2	< 1	< 1	< 1	
Dichloroethane, 1,2-			< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Dichloroethene, 1,1-			10	2.6	< 1	< 1	< 1	< 1	< 1	< 1	4.4	6.3	3.4	3.2	3.7	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Dichloroethene, cis-1,2-			250	194	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Dichloroethene, trans-1,2-			3.6	2.5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Dichloropropane, 1,2-			< 2	NT	< 2	< 2	< 2	< 2	NT	< 2	< 2	NT	< 2	< 2	NT	< 2	< 2	NT	< 2	< 2	< 2	< 2	
Dioxane, 1,4-			< 25	NT	< 25	< 25 R	< 25	< 25	NT	< 25	< 25	NT	< 25	< 25	NT	< 25	< 25	NT	< 25	< 25	< 25	< 25	
Ethylbenzene			< 1	NT	< 1	< 1	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	< 1	< 1	
Hexanone, 2-			< 5	NT	< 5	< 5	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	< 5	< 5	
Isopropylbenzene			< 5	NT	< 5	< 5	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	< 5	< 5	
Methyl tert-butyl ether			0.93 J;H	NT	< 1	< 1	< 1	< 1	< 1	NT	12.2	12.1	NT	< 1	< 1	NT	< 1	< 1	NT	3.5	< 1	< 1	< 1
Methylene chloride			< 2	NT	< 2	< 2	< 2	< 2	NT	< 2	< 2	NT	< 2	< 2	NT	< 2	< 2	NT	< 2	< 2	< 2	< 2	
Naphthalene			< 5	NT	< 5	< 5	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	< 5	< 5	
Propylbenzene, n-			< 5	NT	< 5	< 5	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	< 5	< 5	
Tetrachloroethane, 1,1,1,2-			< 5	< 1	< 5	< 5	< 5	< 5	< 1	< 5	< 5	< 1	< 5	< 5	< 1	< 5	< 5	< 1	< 5	< 5	< 5	< 5	
Tetrachloroethene			39.6	31.2	7.8	0.69 J	0.67 J	< 1	< 1	1 F-	1.2	2.3	< 1	< 1	< 1	< 1	< 1	< 1	178 F-	28.5	0.89 J;F-	0.93 J	
Tetrahydrofuran			< 10	NT	< 10	< 10	< 10	< 10	NT	< 10	< 10	NT	< 10	< 10	NT	< 10	< 10	NT	< 10	< 10	< 10	< 10	
Tert-Amyl-Methyl-Ether			< 2	NT	< 2	< 2	< 2	< 2	NT	< 2	< 2	NT	< 2	< 2	NT	< 2	< 2	NT	< 2	< 2	< 2	< 2	
Toluene			< 1	NT	< 1	< 1	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	< 1	< 1	
Trichloroethane, 1,1,1-			5.6 H	28	< 1	< 1	< 1	< 1	< 1	< 1	15.3	1.5 H	6.4	< 1	< 1	< 1	< 1	< 1	< 1	0.77 J	0.97 J	< 1	< 1
Trichloroethane, 1,1,2-			< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Trichloroethene	51.4	40.4	< 1	3.4	3.2	1.5	1.5	3.7	4.8	3.6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	4.5	< 1	< 1	< 1		
Trimethylbenzene, 1,2,4-	< 5	NT	< 5	< 5	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	< 5	< 5			
Trimethylbenzene, 1,3,5-	< 5	NT	< 5	< 5	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	NT	< 5	< 5	< 5	< 5			
Vinyl chloride	40.4	38.2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
Xylene, m,p-	< 1	NT	< 1	< 1	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	< 1	< 1			
Xylene, o-	< 1	NT	< 1	< 1	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	< 1	< 1			
Xylene, Total	< 1	NT	< 1	< 1	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	NT	< 1	< 1	< 1	< 1			
Total VOCs			446.5	412.1	7.8	4.09	3.87	1.5	1.5	36.7	25.6	15.7	8.55	8	ND	ND	ND	ND	187.97	28.5	0.89	ND	
Metals	6010B	ug/L	NT	NT	NT	NT	NT	NT	NT	< 10	NT	NT	< 10	NT	NT	< 10	NT	NT	NT	NT	2.9	NT	
Arsenic										319			6160			< 10					84000		
Iron			NT	NT	NT	NT	NT	NT	NT		NT	NT		NT	NT		NT	NT	NT	NT		NT	
Other		ug/L																					
Methane	8015									< 10			4.13 J			0.18					< 10		
Ethane	8015									< 10			< 10			< 10					< 10		
Ethene	8015									< 10			< 10			< 10					< 10		
Alkalinity, Total as CaCO3	EPA 310.1									83100			174000			71100					122000		
Chloride	EPA 325.3									1870000			100000			235000					142000		
Nitrogen, Nitrate	EPA 353.2									12800			< 110			< 110					2300		
Nitrogen, Nitrate + Nitrite	EPA 353.2									12900			100			< 100					2400		
Nitrogen, Nitrite	EPA 354.1									83			< 10			< 10					54		
Nitrogen, Nitrite	EPA 375.4									86800			33400			28100					47700		
Sulfate	EPA 376.1									< 2000			< 2000			< 2000					< 2000		
Sulfide	EPA 376.1									< 100			150			< 100					< 100		
Surfactants, MBAS as LAS	EPA 425.1									1300			12200			1300					5700		
Total Organic Carbon	EPA 415.1																						

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  2. "< " = The analyte was not detected at a concentration
  3. ft bgs = feet below ground surface.
  4. ug/L = micrograms per liter.
  5. SHA = Sanborn Head & Associates.
  6. FD = Field Duplicate Sample.
  7. NT = Not Tested.

- Qualifying Note:**
- E The reported value is estimated; reported from undiluted sample run due to sample non-homogeneity.
- F+ The result has a high bias due to matrix spike recovery above upper control limits.
- F- The result has a low bias due to matrix spike recovery below lower control limits.
- G The result is estimated due to duplicate precision outside control limits.
- H The result has a high bias due to calibration verification standard recovery above the upper control limits.
- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.
- M The result is above the calibration range and is estimated.
- R The result is rejected due to gross exceedence of minimum response factor criteria.
- T The reported value is estimated due to Continuing Calibration Check standard percent difference outside of control limits.





Table 5-2  
Chemical Testing Results - Groundwater Samples  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Well Screen Interval (ft bgs): Sample Date: Collected by:			MW111 4-14			MW112A			MW113 10-20				MW114 7-17			MW115R 10-25			MW116 5-15				MW117S 5-20
			1/18/07 GEI	4/16/07 GEI	7/18/07 GEI	3/23/07 GEI	4/16/07 GEI	7/18/07 GEI	2/20/07 GEI	4/12/07 GEI	7/18/07 GEI	7/18/07 (FD) GEI	2/20/07 GEI	4/13/07 GEI	7/18/07 GEI	3/23/07 GEI	4/13/07 GEI	7/18/07 GEI	3/23/07 GEI	4/16/07 GEI	7/18/07 GEI	7/18/07 (FD) GEI	7/18/07 GEI
Analyte	Method	Units																					
Volatile Organic Compounds (VOCs)																							
Acetone	8260B	ug/L	< 50	< 130	NT	<5.0	< 5	NT	< 5	3.8 J	NT	NT	< 5	< 5	NT	< 5	< 5	NT	<5.0	< 5	NT	NT	NT
Benzene			< 50	< 13	NT	<0.50	< 0.50	NT	< 0.5	< 0.50	NT	NT	< 5	< 0.50	NT	< 0.50	< 0.50	NT	0.24 J	< 0.50	NT	NT	NT
Bromoform			< 10	< 25	NT	<1.0	< 1	NT	< 1	< 1	NT	NT	< 1	< 1	NT	< 1	< 1	NT	<1.0	< 1	NT	NT	NT
Carbon tetrachloride			< 10	< 25	< 1	<1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	<1.0	< 1	< 1	< 1	< 1
Carbon disulfide			< 50	< 130	NT	<5.0	< 5	NT	< 5	0.66 J	NT	NT	< 5	< 5	NT	< 5	< 5	NT	<5.0	< 5	NT	NT	NT
Chlorobenzene			< 10	< 25	NT	<1.0	< 1	NT	< 1	< 1	NT	NT	< 1	< 1	NT	< 1	< 1	NT	<1.0	< 1	NT	NT	NT
Chloroethane			< 20	< 50	< 2	<2.0	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	<2.0	< 2	2.4	2.3	< 2
Chloroform			< 10	< 25	NT	0.35 J	< 1	NT	< 1	< 1	NT	NT	< 1	< 1	NT	< 1	< 1	NT	<1.0	< 1	NT	NT	NT
Chloromethane			< 20	< 50	NT	<2.0	< 2	NT	< 2	< 2	NT	NT	< 2	< 2	NT	< 2	< 2	NT	<2.0	< 2	NT	NT	NT
Dichloroethane, 1,1-			30.9	15.7 J	16.8	27.6	24	6.4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	135	4.4	97.3	96.9	< 1
Dichloroethane, 1,2-			< 10	< 25	0.43 J	<1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	<1.0	< 1	< 1	< 1	< 1
Dichloroethene, 1,1-			17.6	< 25	10.5	19.7	10.8	6.7	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	107	2.7	33.8	34	< 1
Dichloroethene, cis-1,2-			22.6	17.2 J	56.3	<1.0	0.54 J	0.98 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	103	21.7	415	431	< 1
Dichloroethene, trans-1,2-			< 10	< 25	1.5	<1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1.8	< 1	4.3	4.4	< 1
Dichloropropane, 1,2-			< 20	< 50	NT	<2.0	< 2	NT	< 2	< 2	NT	NT	< 2	< 2	NT	< 2	< 2	NT	<2.0	< 2	NT	NT	NT
Dioxane, 1,4-			< 250	< 630	NT	<25	< 25	NT	< 25	< 25	NT	NT	< 25	< 25	NT	< 25	< 25	NT	<25	< 25	NT	NT	NT
Ethylbenzene			< 10	< 25	NT	<1.0	< 1	NT	< 1	< 1	NT	NT	< 1	< 1	NT	< 1	< 1	NT	<1.0	< 1	NT	NT	NT
Hexanone, 2-			< 50	< 130	NT	<5.0	< 5	NT	< 5	< 5	NT	NT	< 5	< 5	NT	< 5	< 5	NT	<5.0	< 5	NT	NT	NT
Isopropylbenzene			< 50	< 130	NT	<5.0	< 5	NT	< 5	< 5	NT	NT	< 5	< 5	NT	< 5	< 5	NT	<5.0	< 5	NT	NT	NT
Methyl tert-butyl ether			< 10	< 25	NT	10.8	13.8	NT	< 1	< 1	NT	NT	< 1	< 1	NT	< 1	< 1	NT	12.3	0.40 J	NT	NT	NT
Methylene chloride			< 20	31.4 J	NT	<2.0	< 2	NT	< 2	< 2	NT	NT	< 2	< 2	NT	< 2	< 2	NT	<2.0	< 2	NT	NT	NT
Naphthalene			< 50	< 130	NT	<5.0	< 5	NT	< 5	1.2 J	NT	NT	< 5	< 5	NT	< 5	< 5	NT	<5.0	< 5	NT	NT	NT
Propylbenzene, n-			< 50	< 130	NT	<5.0	< 5	NT	< 5	< 5	NT	NT	< 5	< 5	NT	< 5	< 5	NT	<5.0	< 5	NT	NT	NT
Tetrachloroethane, 1,1,1,2-			< 50	< 130	< 1	<5.0	< 5	< 1	< 5	< 5	< 1	< 1	< 5	< 5	< 1	< 5	< 5	< 1	<5.0	< 5	< 1	< 1	< 1
Tetrachloroethene			13700 F-	7370	6340	261	198	144	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1180	32.2 P	167	168	< 1
Tetrahydrofuran			< 100	< 250	NT	< 10	< 10	NT	< 10	< 10	NT	NT	< 10	< 10	NT	< 10	< 10	NT	30.6	13.8	NT	NT	NT
Tert-Amyl-Methyl-Ether			< 20	< 50	NT	<2.0	< 2	NT	< 2	< 2	NT	NT	< 2	< 2	NT	< 2	< 2	NT	<2.0	< 2	NT	NT	NT
Toluene			< 10	< 25	NT	0.54 J	< 1	NT	0.44 J	< 1	NT	NT	0.34 J	< 1	NT	< 1	< 1	NT	<1.0	< 1	NT	NT	NT
Trichloroethane, 1,1,1-			142	56.5	89.1	1.3	0.96 J	0.68 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	21.6	0.67 J	10.6	10.7	< 1
Trichloroethane, 1,1,2-			< 10	< 25	< 1	<1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	<1.0	< 1	< 1	< 1	< 1
Trichloroethene			150	84.4	120	34	36.1	26.7	< 1	0.82 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	358	19.4	72.7	73.2	< 1
Trimethylbenzene, 1,2,4-			< 50	< 130	NT	<5.0	< 5	NT	< 5	0.45 J	NT	NT	< 5	< 5	NT	< 5	< 5	NT	<5.0	< 5	NT	NT	NT
Trimethylbenzene, 1,3,5-			< 50	< 130	NT	<5.0	< 5	NT	< 5	< 5	NT	NT	< 5	< 5	NT	< 5	< 5	NT	<5.0	< 5	NT	NT	NT
Vinyl chloride			< 10	< 25	< 1	0.84 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	14.1	3.2	185	182	< 1
Xylene, m,p-			< 10	< 25	NT	<1.0	< 1	NT	< 1	< 1	NT	NT	< 1	< 1	NT	< 1	< 1	NT	<1.0	< 1	NT	NT	NT
Xylene, o-			< 10	< 25	NT	<1.0	< 1	NT	< 1	< 1	NT	NT	< 1	< 1	NT	< 1	< 1	NT	<1.0	< 1	NT	NT	NT
Xylene, Total			< 10	< 25	NT	<1.0	< 1	NT	< 1	< 1	NT	NT	< 1	< 1	NT	< 1	< 1	NT	<1.0	< 1	NT	NT	NT
Total VOCs			363.1	7510.9	6634.2	356.13	282.7	183.8	0.44	ND	ND	ND	0.34	ND	ND	ND	ND	ND	1963.64	65.2	988.1	1002.5	ND
Metals	6010B	ug/L	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic																							
Iron																							
Other		ug/L	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methane	8015																						
Ethane	8015																						
Ethene	8015																						
Alkalinity, Total as CaCO <sub>3</sub>	EPA 310.1																						
Chloride	EPA 325.3																						
Nitrogen, Nitrate	EPA 353.2																						
Nitrogen, Nitrate + Nitrite	EPA 353.2																						
Nitrogen, Nitrite	EPA 354.1																						
Sulfate	EPA 375.4																						
Sulfide	EPA 376.1																						
Surfactants, MBAS as LAS	EPA 425.1																						
Total Organic Carbon	EPA 415.1																						

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
2. "<" = The analyte was not detected at a concentration
3. ft bgs = feet below ground surface.
4. ug/L = micrograms per liter.
5. SHA = Sanborn Head & Associates.
6. FD = Field Duplicate Sample.
7. NT = Not Tested.

Qualifying Note:

- E The reported value is estimated; reported from undiluted sample run due to sample non-homogeneity.
- F+ The result has a high bias due to matrix spike recovery above upper control limits.
- F- The result has a low bias due to matrix spike recovery below lower control limits.
- G The result is estimated due to duplicate precision outside control limits.
- H The result has a high bias due to calibration verification standard recovery above the upper control limits.
- J The reported result is below the laboratory reporting limit and is estimated.
- J + The reported result is estimated.
- M The result is above the calibration range and is estimated.
- R The result is rejected due to gross exceedence of minimum response factor criteria.
- T The reported value is estimated due to Continuing Calibration Check standard percent difference outside of control limits.





Table 5-2  
Chemical Testing Results - Groundwater Samples  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Well Screen Interval (ft bgs): Sample Date: Collected by:			MW117T 35-45 7/19/07 GEI	MW117D 60-70 7/19/07 GEI	MW118S 3-14 7/20/07 GEI 8/30/07 GEI		MW118T 39.5-49.5 7/20/07 GEI 8/30/07 GEI		MW118D 70-80 7/20/07 GEI 8/30/07 GEI		MW119S 5-20 8/22/07 GEI	MW119T 42-47 8/22/07 GEI	MW120S 5-20 8/22/07 GEI	MW120D 28-38 8/22/07 GEI	MW201 11-21 7/19/07 GEI	MW202 10.5-20.5 7/19/07 GEI	MW203 6-18 7/19/07 GEI	
Analyte	Method	Units																
Volatile Organic Compounds (VOCs)			8260B	ug/L														
Acetone			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 5.0 J+	< 5.0	< 5.0	< 5.0	NT	NT	NT
Benzene			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 0.50 J+	< 0.50	< 0.50	< 0.50	NT	NT	NT
Bromoform			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 1.0 J+	< 1.0	< 1.0	< 1.0	NT	NT	NT
Carbon tetrachloride			< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1	< 1	< 1
Carbon disulfide			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 5.0 J+	< 5.0	0.56 J+	< 5.0	NT	NT	NT
Chlorobenzene			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 1.0 J+	< 1.0	< 1.0	< 1.0	NT	NT	NT
Chloroethane			< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2	< 2	< 2
Chloroform			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 1.0 J+	< 1.0	1.9 J+	< 1.0	NT	NT	NT
Chloromethane			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 2.0 J+	9.2 J+	10.3 J+	12 J+	NT	NT	NT
Dichloroethane, 1,1-			< 1	< 1	< 1	< 1	35.4	34.4	20.3	21.4	< 1.0 J+	10.4 J+	1.1 J+	23 J+	< 1	0.50 J	22.2	
Dichloroethane, 1,2-			< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1	< 1	< 1	
Dichloroethene, 1,1-			< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0 J+	2	< 1.0	15.6 J+	4.7	1.1	76.4	
Dichloroethene, cis-1,2-			< 1	< 1	< 1	< 1	0.45 J	< 1	0.55 J	< 1	< 1.0 J+	0.54 J+	< 1.0	0.70 J+	< 1	< 1	102	
Dichloroethene, trans-1,2-			< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1	< 1	1.2	
Dichloropropane, 1,2-			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 2.0 J+	< 2.0	< 2.0	< 2.0	NT	NT	NT
Dioxane, 1,4-			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 25 J+	< 25	< 25	< 25	NT	NT	NT
Ethylbenzene			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 1.0 J+	< 1.0	< 1.0	< 1.0	NT	NT	NT
Hexanone, 2-			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 5.0 J+	< 5.0	< 5.0	< 5.0	NT	NT	NT
Isopropylbenzene			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 5.0 J+	< 5.0	< 5.0	< 5.0	NT	NT	NT
Methyl tert-butyl ether			NT	NT	NT	NT	NT	NT	NT	NT	NT	5.2 J+	4.1	< 1.0	6.8 J+	NT	NT	NT
Methylene chloride			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 2.0 J+	< 2.0	< 2.0	< 2.0	NT	NT	NT
Naphthalene			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 5.0 J+	< 5.0	< 5.0	< 5.0	NT	NT	NT
Propylbenzene, n-			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 5.0 J+	< 5.0	< 5.0	< 5.0	NT	NT	NT
Tetrachloroethane, 1,1,1,2-			< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 1	< 1	< 1	
Tetrachloroethene			< 1	0.54 J	0.39 J	< 1	3	3.8	7	8.4	< 1.0 J+	94.3 J+	< 1.0	93.5 J+	5.1	17.2	15500	
Tetrahydrofuran			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 10 J+	< 10	< 10	< 10	NT	NT	NT
Tert-Amyl-Methyl-Ether			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 2.0 J+	< 2.0	< 2.0	< 2.0	NT	NT	NT
Toluene			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 1.0 J+	< 1.0	< 1.0	< 1.0	NT	NT	NT
Trichloroethane, 1,1,1-			< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0 J+	< 1.0	< 1.0	< 1.0	10.3 J+	9.8	12.5	
Trichloroethane, 1,1,2-			< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1	< 1	0.66 J	
Trichloroethene			< 1	< 1	< 1	< 1	< 1	< 1	< 1	1.2	3.9	< 1.0 J+	25.9 J+	< 1.0	32.6	4.5	2.2	
Trimethylbenzene, 1,2,4-			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 5.0 J+	< 5.0	< 5.0	< 5.0	NT	NT	NT
Trimethylbenzene, 1,3,5-			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 5.0 J+	< 5.0	< 5.0	< 5.0	NT	NT	NT
Vinyl chloride			< 1	< 1	< 1	< 1	< 1	2.3	< 1	2.4	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1	
Xylene, m,p-			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 1.0 J+	< 1.0	< 1.0	< 1.0	NT	NT	NT
Xylene, o-			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 1.0 J+	< 1.0	< 1.0	< 1.0	NT	NT	NT
Xylene, Total			NT	NT	NT	NT	NT	NT	NT	NT	NT	< 1.0 J+	< 1.0	< 1.0	< 1.0	NT	NT	NT
Total VOCs			ND	ND	ND	ND	38.4	40.5	28.5	36.1	5.2	6.1	0	32.6	24.1	33	18390.8	
Metals			6010B	ug/L	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Arsenic																		
Iron																		
Other																		
Methane	8015																	
Ethane	8015																	
Ethene	8015																	
Alkalinity, Total as CaCO <sub>3</sub>	EPA 310.1																	
Chloride	EPA 325.3																	
Nitrogen, Nitrate	EPA 353.2																	
Nitrogen, Nitrate + Nitrite	EPA 353.2																	
Nitrogen, Nitrite	EPA 354.1																	
Sulfate	EPA 375.4																	
Sulfide	EPA 376.1																	
Surfactants, MBAS as LAS	EPA 425.1																	
Total Organic Carbon	EPA 415.1																	

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  2. "< " = The analyte was not detected at a concentration
  3. ft bgs = feet below ground surface.
  4. ug/L = micrograms per liter.
  5. SHA = Sanborn Head & Associates.
  6. FD = Field Duplicate Sample.
  7. NT = Not Tested.

- Qualifying Note:**
- E The reported value is estimated; reported from undiluted sample run due to sample non-homogeneity.
- F+ The result has a high bias due to matrix spike recovery above upper control limits.
- F- The result has a low bias due to matrix spike recovery below lower control limits.
- G The result is estimated due to duplicate precision outside control limits.
- H The result has a high bias due to calibration verification standard recovery above the upper control limits.
- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.
- M The result is above the calibration range and is estimated.
- R The result is rejected due to gross exceedence of minimum response factor criteria.
- T The reported value is estimated due to Continuing Calibration Check standard percent difference outside of control limits.





**Table 5-3**  
**Summary of Drilling and Monitoring Well Installation Activities**  
 50 Tufts Street  
 Somerville, Massachusetts

Sampling Event and Date	Locations	Laboratory Analytical Sampling (Y/N?)	Laboratory Analytical Detail	QA/QC
Vacuum Excavation 6/5/2007	MW117S, MW117T, and MW117D	Yes	- Submitted soil sample for VOCs, % solids, and TOC testing.	NA
Monitoring Well Installation 6/18/2007 - 6/21/07	MW117S, MW117D	Yes	- Submitted soil samples for VOCs, % solids, grain size, and TOC testing. - Submitted rock sample for bulk density, matrix porosit, TOC testing.	Collected sample of drilling water for VOC testing (6/18/07)
Monitoring Well Installation 6/22/2007	MW117T	No	NA	NA
Monitoring Well Installation 6/25/07-7/2/07	MW118D	Yes	- Submitted soil samples for VOCs, % solids, grain size, and TOC testing. - Submitted rock sample for bulk density, matrix porosit, TOC testing.	Collected water sample from irrigation well for VOC testing (6/25/07)
Monitoring Well Development 7/3/2007	MW117S, MW117T, MW117D, MW118S, MW118T, MW118D	No	NA	NA
Monitoring Well Installation 7/10/07-7/11/07	MW201, MW202, MW203	Yes	- Submitted soil samples for VOCs testing.	NA
Monitoring Well Installation 8/7/2007 - 8/9/07	MW119S, 119T MW120S, and MW120D.	Yes	- Submitted soil samples for VOCs and % solids testing.	NA
Monitoring Well Development 8/9/07 - 8/10/07	MW119S, MW119T, MW120S, and MW120T.	No	NA	NA
Monitoring Well Abandonment 8/9/2007	SHMW1 located on 50 Tufts Street property	No	NA	NA

**General Notes:**

1. NA = Not Applicable.
2. QA/QC = Quality Assurance/Quality Check.
3. MS/MSD = Matrix Spike/Matrix Spike Duplicate.
4. VOC = Volatile Organic Compound.
5. TOC = Total Organic Carbon.



**Table 5-4**  
**Summary of Soil Vapor Sampling at Monitoring Wells**  
**50 Tufts Street**  
**Somerville, Massachusetts**

Sampling Event	Date	Sampled Locations
Quarterly Soil Vapor Sampling	4/10/2007	MW106, MW107, MW108, MW109, MW113, MW114, MW115 <sup>(a)</sup>
	4/11/2007	MW112A, MW116, and MW111
Quarterly Soil Vapor Sampling	7/17/2007	MW106, MW107, MW108, MW111, MW112A, MW114, MW115R, MW116, MW117S, MW118S
Soil Vapor Sampling	8/28/2007	MW119S and MW120S
Soil Vapor Sampling	8/30/2007	MW118S

**General Notes:**

1. Samples collected using 6L-Summa, 1-hr. regulator.
2. Samples submitted for Volatile Organic Compound testing.

**Footnote:**

(a) Did not collect soil gas sample from MW110 because roadbox was filled with water.





**Table 5-5**  
**Summary of Groundwater Sampling Activities**  
 50 Tufts Street  
 Somerville, Massachusetts

Sampling Event and Date	Sampled Locations	QA/QC Samples
Quarterly Groundwater Sampling 4/12/2007	- GEO-1, GEO-2, SH-MW1,SH-MW3, and MW113	NA
4/13/2007	- GEO-3, MW101, MW102, MW103, MW104 MW106, MW107, MW114, MW115.	-Field duplicate MW900 (MW101)
4/16/2007	-GEO-4, GEO-5, GEO-6, MW105, MW108, MW109, MW110, MW111, MW112A, MW116, SH-MW2	-Field duplicate MW901 (GEO-6)
4/17/2007	- MW1, MW3	NA
Quarterly Groundwater Sampling 7/18/2007	- MW102, MW107, MW108, MW111, MW112A, MW113, MW114, MW115R, MW116, MW117S	-Sample from MW102 was used for MS/MSD -Field duplicate MW900 (MW113) -Field duplicate MW901 (MW116)
7/19/2007	- MW104, MW105, MW106, MW201, MW202, MW203, SH-MW2, MW117T, MW117D	NA
7/20/2007	- MW118T, MW118S, MW118T, MW118D	NA
Groundwater Sampling 8/22/2007	- MW119S, MW119T, MW120S, MW120T	NA
Groundwater Sampling 8/31/2007	- MW118S, MW118T, and MW118D	NA

**General Notes:**

1. NA = Not Applicable.
2. QA/QC = Quality Assurance/Quality Check.
3. MS/MSD = Matrix Spike/Matrix Spike Duplicate.
4. VOC = Volatile Organic Compound.
5. Sampled MW111 with a bailer after well was purged dry during low-flow sampling.
6. SH-1 through SH-5 were destroyed during remediation activities inside the 50 Tufts Street Building.
7. MW-2 was not located and is presumed destroyed.
8. All groundwater samples submitted for VOCs testing.



**Table 5-6**  
**Summary of Hydraulic Conductivity Testing**  
**50 Tufts Street**  
**Somerville, Massachusetts**

Date	Tested Locations	Test Conducted
4/9/2007	MW109, GEO-2, SH-MW3, MW111	Rising head
4/10/2007	MW112A, MW116	Rising head
6/21/2007	MW117D	Rising and falling head slug
7/2/2007	MW118D	Rising and falling head slug





Table 5-7  
Summary of Testing Results - Soil Samples  
50 Tufts Street  
Somerville, Massachusetts

Location Name: Sample Depth (ft bgs): Sample Name: Sample Date: Collected By: Geologic Unit:			GEO-1		GEO-4	SH-MW1	SH-MW2	SH-MW3	SH-1	SH-2	SH-3	SH-4	SH-5	SH-B1	Franklin St. Community		MW101	
			0-2	6-8	11-13	10-12	15-17	15-17	12-14	4-5	3-4	8-12	4-8	8-12	0-2.5	0-2.5	2-3	13.5-15.5
			GEO-1	GEO-1	GEO-4	SH MW1 S3	SH MW2 S4	SH MW3 S4	SH1 S4	SH2 S2A	SH3 S1D	SH4 S3	SH5 S2	SHB1 S3	Garden 1	Garden 2	MW101 S1	MW101 S4
			8/12/04	8/12/04	8/13/04	7/3/02	7/3/02	7/3/02	6/21/02	6/21/02	6/21/02	6/21/02	6/21/02	6/21/02	3/30/07	3/30/07	4/27/06	5/1/06
			Geolnsight	Geolnsight	Geolnsight	SHA	SHA	SHA	SHA	SHA	SHA	SHA	SHA	SHA	GEI	GEI	GEI	GEI
			Sand	Sand	Sand	Silt and Clay	Silt and Clay	Clay and Silt	Sand	Sand	Sand and Silt	Sand	Sand and Silt	Sand	Sand	Sand	Sand and Gravel	Sand
Analyte	Method	Units																
Volatile Organic Compounds (VOCs)			8260B		mg/kg													
Butanone, 2- (MEK)			< 0.673	< 0.950	< 0.556	< 0.0074	< 1	< 0.0088	< 5.5	< 7.7	< 6.4	< 0.540	< 6.6	1.1	NT	NT	< 0.33	< 0.25
Dichloroethane, 1,1-			< 0.067	< 0.095	< 0.056	< 0.001	< 0.160	< 0.0013	< 0.820	< 1.20	< 0.960	< 0.08	< 0.990	< 0.100	< 0.098	< 0.099	< 0.13	< 0.1
Dichloroethene, cis-1,2-			< 0.067	< 0.095	< 0.056	< 0.00074	< 0.100	< 0.00088	< 0.550	< 0.770	< 0.640	< 0.054	< 0.660	< 0.071	< 0.098	< 0.099	< 0.13	< 0.1
Ethylbenzene			< 0.067	< 0.095	< 0.056	< 0.00074	< 0.100	< 0.00088	< 0.550	< 0.770	< 0.640	< 0.054	< 0.660	< 0.071	NT	NT	< 0.13	< 0.1
4-Methyl - 2 - pentanone (MIBK)			< 0.673	< .950	< .556	< 0.00074	< 0.100	< 0.0088	< 5.5	< 7.70	< 6.40	< 0.540	< 6.6	0.86	NT	NT	< 0.33	< 0.25
Methylene Chloride			< 0.673	< 0.950	< 0.556	< 0.0074	< 1	< 0.0088	< 5.5	< 1.20	< 0.960	< 0.540	< 6.6	< 0.100	NT	NT	< 0.130	< 0.1
Napthalene			< 0.0673	< 0.095	< 0.0556	< 0.0037	< 0.520	< 0.0044	< 2.7	< 3.9	< 3.2	< 0.270	< 3.3	< 0.350	NT	NT	< 0.330	< 0.250
Tetrachloroethylene (PCE)			2.45	8.07	0.111	0.01	23	0.16	1500	1800	140	4.8	61	7.8	< 0.098	< 0.099	0.989	0.0649 J
Toluene			< 0.0673	< 0.095	< 0.0556	0.0037	< 0.160	< 0.0013	< 0.82	< 1.2	< 0.96	< 0.08	< 0.990	< 0.1	NT	NT	< 0.33	< 0.25
Trichloroethane, 1,1,1-			0.145	1.33	0.0795	< 0.00074	0.24	0.0091	< 0.55	< 0.770	< 0.640	0.37	< 0.660	2.7	< 0.098	< 0.099	0.0767 J	< 0.1
Trichloroethylene (TCE)			0.164	1.12	< 0.0556	< 0.00074	0.32	0.0062	< 0.55	2.0	< 0.640	1.4	< 0.660	4.4	< 0.098	< 0.099	0.358	< 0.1
Xylene, m,p-			< 135	< .190	< .111	< 0.00074	< 0.100	< 0.00088	< 0.550	< 0.770	< 0.640	< 0.054	< 0.660	< 0.071	NT	NT	< 0.13	< 0.1
Xylene, o-			< 67.3	< .095	< 0.556	< 0.00074	< 0.100	< 0.00088	< 0.550	< 0.770	< 0.640	< 0.054	< 0.660	< 0.071	NT	NT	< 0.13	< 0.1
Total Xylenes			< 135	< .190	< 0.111	< 0.00074	< 0.100	< 0.00088	< 0.550	< 0.770	< 0.640	< 0.054	< 0.660	< 0.071	NT	NT	< 0.13	< 0.1
Total VOCs			2.76	10.5	0.191	0.0137	23.6	0.175	1500	1800	140	6.57	61	16.9	ND	ND	1.42	0.0649 J
Volatile Petroleum Hydrocarbons (VPH)			MAVPH		mg/kg	NT	NT	NT	NT	300	833	43	< 1.75	NT	NT	NT	NT	NT
C5-C8 Aliphatics																		
Extractable Petroleum Hydrocarbons (EPH)			MAEPH		mg/kg	NT	NT	NT	NT	144	86.4	< 10.6	< 12.8	< 11.1	NT	NT	NT	NT
C19-C36 Aliphatics									< 10.9	916		< 10.6	41.0	< 11.1				
C11-C22 Aromatics									< 10.9									
Other			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Solids, Percent	EPA 160.3 M	%																
Specific Conductivity	EPA 120.1M	umhos/cm																
Total Organic Carbon	CORP ENG 81M/SW9060M	mg/kg																
pH	SW846 9045	su																

- General Notes:**
- Generally, only analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  - "<" = The analyte was not detected at a concentration above the specified reporting limit.
  - ft bgs = feet below ground surface.
  - mg/kg = milligrams per kilogram.
  - umhos/cm = micro-ohms per centimeter.
  - su = standard units.
  - SHA = Sanborn Head & Associates.
  - ND = The analyte was not detected above the laboratory reporting limit.
  - See the laboratory data sheets for the laboratory reporting limit.
  - NT = Not tested
  - FD = Field Duplicate.

- Qualifying Note:**
- J The reported result is below the laboratory reporting limit and is estimated.
- B The reported result is attributed to sampling or laboratory contamination.





Table 5-7  
Summary of Testing Results - Soil Samples  
50 Tufts Street  
Somerville, Massachusetts

Location Name: Sample Depth (ft bgs): Sample Name: Sample Date: Collected By: Geologic Unit:			MW101 (continued)		MW102		MW103			MW104			MW105		MW106			
			15.5-17.5	17.5-19.5	2-3	12.5-14.6	2-3	6-8	14-16	0-5	5-10	10-15	2-3	23-25	3	2-4	12-14	16-18
			MW101 S5	MW101 S6	MW102 S1	MW102 S5	MW103 S1	MW103 S2	MW103 S6	MW104 S1	MW104 S2	MW104 S3C	MW105 S1	MW105 S9	B106-VAC-GRAB	B106-VAC-COMP	B106(12-14')	045126-B106(16-18')
			5/1/06	5/1/06	4/27/06	5/1/06	4/27/06	5/1/06	5/1/06	5/17/06	5/17/06	5/17/06	4/28/06	5/2/06	1/3/07	1/3/07	1/5/07	1/5/07
			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
			Sand	Sand	Sand and Gravel	Sand and Gravel	Sand and Gravel	Sandy Silt	Sand	Silty Sand	Sandy Silt	Silty Sand	Sand and Gravel	Sand	Fill	Fill	Till	Till
Analyte	Method	Units																
Volatile Organic Compounds (VOCs)	8260B	mg/kg	< 0.26	< 0.23	< 0.29	< 0.21	ND	ND	< 0.21	< 0.32	< 0.23	< 0.26	ND	ND	ND	NT	ND	ND
Butanone, 2- (MEK)			< 0.1	< 0.093	< 0.12	< 0.083			< 0.082	< 0.13	< 0.092	1.39						
Dichloroethane, 1,1-			< 0.1	< 0.093	< 0.12	< 0.083			< 0.082	< 0.13	< 0.092	1.44						
Dichloroethene, cis-1,2-			< 0.1	< 0.093	< 0.12	< 0.083			< 0.082	0.0416 J	< 0.092	< 0.1						
Ethylbenzene			< 0.26	< 0.23	< 0.29	< 0.21			< 0.21	< 0.32	< 0.23	< 0.26						
4-Methyl - 2 - pentanone (MIBK)			< 0.1	< 0.093	< 0.12	< 0.083			< 0.082	< 0.13	< 0.092	< 0.100						
Methylene Chloride			< 0.260	< 0.230	< 0.290	< 0.210			< 0.21	< 0.320	< 0.230	< 0.260						
Napthalene			0.054 J	0.0699 J	< 0.12	0.164			0.722	0.949	4.25	0.564						
Tetrachloroethylene (PCE)			< 0.26	< 0.23	< 0.29	< 0.21			< 0.21	0.0757 J	0.0216 J	< 0.26						
Toluene			< 0.1	< 0.093	< 0.12	< 0.083			< 0.082	< 0.13	< 0.092	0.781						
Trichloroethane, 1,1,1-			< 0.1	< 0.093	< 0.12	< 0.083			< 0.082	< 0.13	0.093	0.593						
Trichloroethylene (TCE)			< 0.1	< 0.093	< 0.12	< 0.083			< 0.082	0.125 J	< 0.092	< 0.1						
Xylene, m,p-			< 0.1	< 0.093	< 0.12	< 0.083			< 0.082	0.0571 J	< 0.092	< 0.1						
Xylene, o-			< 0.1	< 0.093	< 0.12	< 0.083			< 0.082	0.182	< 0.092	< 0.1						
Total Xylenes			0.054 J	0.0699 J	ND	0.16			0.72	1.43	4.37	4.77						
Total VOCs																		
Volatile Petroleum Hydrocarbons (VPH)	MAVPH	mg/kg	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C5-C8 Aliphatics																		
Extractable Petroleum Hydrocarbons (EPH)	MAEPH	mg/kg	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C19-C36 Aliphatics																		
C11-C22 Aromatics																		
Other			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT			
Solids, Percent	EPA 160.3 M	%														85.3	86.7	85.9
Specific Conductivity	EPA 120.1M	umhos/cm														137	1420	883
Total Organic Carbon	CORP ENG 81M/SW9060M	mg/kg														28200	< 1100	< 1100
pH	SW846 9045	su														6.9	7.1	6.8

- General Notes:**
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  - "<" = The analyte was not detected at a concentration above the specified reporting limit.
  - ft bgs = feet below ground surface.
  - mg/kg = milligrams per kilogram.
  - umhos/cm = micro-ohms per centimeter.
  - su = standard units.
  - SHA = Sanborn Head & Associates.
  - ND = The analyte was not detected above the laboratory reporting limit.  
See the laboratory data sheets for the laboratory reporting limit.
  - NT = Not tested
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- Qualifying Note:**
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- B The reported result is attributed to sampling or laboratory contamination.





Table 5-7  
Summary of Testing Results - Soil Samples  
50 Tufts Street  
Somerville, Massachusetts

Location Name: Sample Depth (ft bgs): Sample Name: Sample Date: Collected By: Geologic Unit:			MW107				MW108			MW109				MW110				
			3	2-4	7-9	20-21	3	2-4	7-8	3	2-4	7-9	13-15	3	2-4	7-9	7-9	13-14
			B107-VAC-GRAB	B107-VAC-COMP	B107(7-9')	B107(20-21')	B108-VAC-GRAB	B108-VAC-COMP	B108(7-8')	B109-VAC-GRAB	B109-VAC-COMP	B109(7-9')	B109(13-15')	B110-VAC-GRAB	B110-VAC-COMP	B110(7-9')	B110 (FD)	B110(13-14')
			1/3/07 GEI	1/3/07 GEI	1/5/07 GEI	1/5/07 GEI	1/3/07 GEI	1/3/07 GEI	1/5/07 GEI	1/3/07 GEI	1/3/07 GEI	1/5/07 GEI	1/5/07 Gel	1/4/07 GEI	1/4/07 GEI	1/8/07 GEI	1/8/07 GEI	1/8/07 GEI
			Fill	Fill	Silt	Till	Fill	Fill	Silty Sand	Fill	Fill	Sand and Gravel	Sand and Gravel	Fill	Fill	Silt	Silt	Silt
Analyte	Method	Units																
<b>Volatile Organic Compounds (VOCs)</b>	8260B	mg/kg	ND	NT	ND	< 0.17	ND	NT	ND	< 0.1	NT	ND	< 0.19	ND	NT	ND	ND	ND
Butanone, 2- (MEK)						0.145				< 0.1			< 0.075					
Dichloroethane, 1,1-						< 0.069				< 0.1			< 0.075					
Dichloroethene, cis-1,2-						< 0.069				< 0.1			< 0.075					
Ethylbenzene						< 0.17				< 0.26			< 0.19					
4-Methyl - 2 - pentanone (MIBK)						< 0.069				< 0.1			< 0.075					
Methylene Chloride						< 0.170				< 0.260			< 0.190					
Napthalene						< 0.069				0.324			0.242					
Tetrachloroethylene (PCE)						< 0.17				< 0.26			< 0.19					
Toluene						< 0.069				< 0.1			< 0.075					
Trichloroethane, 1,1,1-						< 0.069				< 0.1			< 0.075					
Trichloroethylene (TCE)						< 0.069				< 0.1			< 0.075					
Xylene, m,p-						< 0.069				< 0.1			< 0.075					
Xylene, o-						< 0.069				< 0.1			< 0.075					
Total Xylenes						< 0.069				< 0.1			< 0.075					
Total VOCs						0.145				0.324			0.245					
<b>Volatile Petroleum Hydrocarbons (VPH)</b>	MAVPH	mg/kg	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C5-C8 Aliphatics																		
<b>Extractable Petroleum Hydrocarbons (EPH)</b>	MAEPH	mg/kg	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C19-C36 Aliphatics																		
C11-C22 Aromatics																		
<b>Other</b>			NT				NT			NT				NT				
Solids, Percent	EPA 160.3 M	%		79.8	76.5	93.3		86.7	76.5		79.9	85.3	89.2		81	77.3	77.4	84.3
Specific Conductivity	EPA 120.1M	umhos/cm		142	205	214		109	900		109	306	254		262	614	606	325
Total Organic Carbon	CORP ENG 81M/SW9060M	mg/kg		4090	< 1300	< 1000		4430	6650		5580	4620	< 1100		4380	3660	1630	< 1100
pH	SW846 9045	su		7.3	7.5	7.1		6.8	7		5.9	9.2	8.2		6.8	7	6.5	8

- General Notes:**
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  - ft bgs = feet below ground surface.
  - mg/kg = milligrams per kilogram.
  - umhos/cm = micro-ohms per centimeter.
  - su = standard units.
  - SHA = Sanborn Head & Associates.
  - ND = The analyte was not detected above the laboratory reporting limit.  
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  - NT = Not tested
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Table 5-7  
Summary of Testing Results - Soil Samples  
50 Tufts Street  
Somerville, Massachusetts

Location Name: Sample Depth (ft bgs): Sample Name: Sample Date: Collected By: Geologic Unit:			MW111				MW112			MW112A			MW113				MW114		
			3	2-4	7-9	13-15	3	2-4	6-7	0-3'	10-12'	17-19'	2-4'	11-13'	11-13'	19-21'	2-4'	11-13'	19-20'
			B111-VAC-GRAB	B111-VAC-COMP	B111(7-9')	B111(13-15')	B112-VAC-GRAB	B112-VAC-COMP	B112(6-7')	B112A (0-3')	B112A (10-12')	B112A (17-19')	MW113(2-4')	MW113(11-13')	MW100	MW113(19-21')	MW114(2-4')	MW114(11-13')	MW114(19-20')
			1/4/07	1/4/07	1/8/07	1/8/07	1/4/07	1/4/07	1/8/07	3/10/07	3/10/07	3/10/07	2/13/07	2/15/07	2/15/07	2/15/07	2/13/07	2/15/07	2/15/07
			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
			Silty Sand	Silty Sand	Silt	Sand and Gravel	Silty Sand	Silty Sand	Silt	Fill	Till	Till	Fill	Silt	Silt	Till	Fill	Till	Till
Analyte	Method	Units																	
Volatile Organic Compounds (VOCs)	8260B	mg/kg	ND	NT	ND	< 0.19	ND	NT	ND	ND	< 0.2	0.0184	ND	ND	ND	ND	ND	ND	ND
Butanone, 2- (MEK)						< 0.075					< 0.081	0.0265 J							
Dichloroethane, 1,1-						< 0.075					< 0.081	< 0.087							
Dichloroethene, cis-1,2-						< 0.075					< 0.081	< 0.087							
Ethylbenzene						< 0.19					< 0.2	< 0.22							
4-Methyl - 2 - pentanone (MIBK)						0.0176 J					< 0.081	< 0.087							
Methylene Chloride						< 0.190					< 0.200	< 0.220							
Napthalene						3.15					0.0471 J	1.04							
Tetrachloroethylene (PCE)						< 0.19					< 0.2	< 0.22							
Toluene						< 0.075					< 0.081	< 0.087							
Trichloroethane, 1,1,1-						0.0469 J					< 0.081	0.138							
Trichloroethylene (TCE)						< 0.075					< 0.081	< 0.087							
Xylene, m,p-						< 0.075					< 0.081	< 0.087							
Xylene, o-						< 0.075					< 0.081	< 0.087							
Total Xylenes						< 0.075					< 0.081	< 0.087							
Total VOCs						0.0645					0.0471 J	1.223							
Volatile Petroleum Hydrocarbons (VPH)	MAVPH	mg/kg	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C5-C8 Aliphatics																			
Extractable Petroleum Hydrocarbons (EPH)	MAEPH	mg/kg	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C19-C36 Aliphatics																			
C11-C22 Aromatics																			
Other			NT				NT			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Solids, Percent	EPA 160.3 M	%		89.4	80.1	90.3		81.8	76.5										
Specific Conductivity	EPA 120.1M	umhos/cm		107	146	226		1980	685										
Total Organic Carbon	CORP ENG 81M/SW9060M	mg/kg		< 1000	< 1200	< 1100		4600	< 1300										
pH	SW846 9045	su		8.1	6.8	6.8		6.8	7.2										

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  - "<" = The analyte was not detected at a concentration above the specified reporting limit.
  - ft bgs = feet below ground surface.
  - mg/kg = milligrams per kilogram.
  - umhos/cm = micro-ohms per centimeter.
  - su = standard units.
  - SHA = Sanborn Head & Associates.
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**Table 5-8**  
**Summary of Soil Physical Characteristics**  
 50 Tufts Street  
 Somerville, Massachusetts

Sample Location	Sample ID	Sample Depth (ft)	Stratigraphy	Dry Bulk Density (g/cc)	Median Grain Size (mm)	Mean Grain Size Description	Particle Size Distribution (weight %)			
							Gravel	Coarse	Medium	Fine
MW117D	B117D-Fill	3-16	Fill	1.84	0.395	Medium Sand	11.14	5.62	31.3	35.95
	B117D-Silt	20-24	Native Silt	1.52	0.005	Silt	0.00	0.00	0.00	1.73
	B117D-Till	28-32	Glacial Till	2.25	0.015	Silt	0.00	0.00	0.00	24.78
MW118D	B118D-Fill	0-2	Fill	1.59	0.488	Medium Sand	20.06	13.14	46.01	14.69
	B118D-lower Silt	14-16	Native Silt	1.43	0.006	Silt	0.00	0.00	0.00	0.77
	B118D-upper Silt	34-36	Native Silt	1.63	0.004	Silt	0.00	0.00	0.00	0.09
	B118D-Till	44-46	Glacial Till	2.18	5.796	Gravel	52.98	8.64	29.45	6.09

**General Notes:**

1. All analyses were performed by PTS Laboratories.
2. ft = feet.
3. g/cc = grams per cubic centimeter.
4. mm = millimeters
5. weight % = percent by weight.





**Table 5-9**  
**Summary of Rock Core Physical Characteristics**  
**50 Tufts Street**  
**Somerville, Massachusetts**

Sample Location	Sample ID	Sample Depth (ft)	Bulk Density (g/cc)	Grain Density (g/cc)	Total Porosity (% Vb)	Total Organic Carbon (mg/kg)
MW118D	B118D-C1	55-60	2.61	2.64	1.2	780
	B118D-C6	75-80	2.74	2.79	1.7	3550
MW117D	B117D-C1	50-55	2.59	2.76	6.1	430

**General Notes:**

1. All analyses were performed by PTS Laboratories.
2. ft = feet.
3. g/cc = grams per cubic centimeter.
4. % Vb = percent by bulk volume.
5. mg/kg = milligrams/kilogram.
6. Bedrock Type = Cambridge Argillite



Table 5-7  
Summary of Testing Results - Soil Samples  
50 Tufts Street  
Somerville, Massachusetts

Location Name: Sample Depth (ft bgs): Sample Name: Sample Date: Collected By: Geologic Unit:			MW115		MW115R	MW116	MW117D	MW118D	MW119T		MW120D		MW201		MW202		MW203	
			2-4'	18-20'	19-20'	0-3'	8-10	10-12	6-8	14-16	4-6	14-16	11-13	15-17	13-15	17-18	8-10	13-15
			MW115(2-4')	MW115(18-20')	MW115(19-20')	045162-B116 (0-3')	045162-MW117D-S2	045162-MW118D-S2	045162-B119-S4	045162-B119-S7	045162-B120-S3	045162-B120-S7	045162-MW201-GP3	045162-MW201-GP4	045162-MW202-GP3	045162-MW202-GP4	045162-MW203-GP2	045162-MW203-GP3
			2/13/07	2/13/07	2/21/07	3/10/07	6/18/07	6/25/07	8/7/07	8/7/07	8/8/07	8/8/07	7/11/07	7/11/07	7/10/07	7/10/07	7/11/07	7/11/07
			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
			Fill	Till	Til	Till	Fill	Fill	Fill	Till	Fill	Till	Fill	Fill	Fill	Fill	Fill	Fill
Analyte	Method	Units																
Volatile Organic Compounds (VOCs)			8260B		mg/kg	ND	ND	<0.33	< 0.250	< 0.300	< 0.210	< 0.290	< 0.250	< 0.290	NT	NT	NT	NT
Butanone, 2- (MEK)								<0.13	< 0.100	< 0.120	< 0.086	< 0.120	< 0.100	< 0.120	< 0.095	< 0.089	< 0.096	< 0.085
Dichloroethane, 1,1-								<0.13	< 0.100	< 0.120	< 0.086	< 0.120	< 0.100	< 0.120	< 0.095	< 0.089	< 0.096	< 0.085
Dichloroethene, cis-1,2-								<0.13	< 0.100	< 0.120	< 0.086	< 0.120	< 0.100	< 0.120	< 0.095	< 0.089	< 0.096	< 0.085
Ethylbenzene								<0.13	< 0.100	< 0.120	< 0.086	< 0.120	< 0.100	< 0.120	< 0.095	< 0.089	< 0.096	< 0.085
4-Methyl - 2 - pentanone (MIBK)								<0.33	< 0.25	< 0.300	< 0.210	< 0.290	< 0.250	< 0.290	NT	NT	NT	NT
Methylene Chloride								<0.13	0.0952 JB	0.126 B	< 0.086	< 0.120	< 0.100	< 0.120	NT	NT	NT	NT
Napthalene								0.736	0.829	< 0.300	< 0.210	< 0.290	< 0.250	< 0.290	NT	NT	NT	NT
Tetrachloroethylene (PCE)								<0.13	< 0.100	0.233	< 0.086	< 0.120	< 0.100	< 0.120	0.178	0.058 J	< 0.096	< 0.085
Toluene								<0.33	< 0.250	0.0235 J	< 0.210	< 0.290	< 0.250	< 0.290	NT	NT	NT	NT
Trichloroethane, 1,1,1-								<0.13	< 0.100	< 0.120	< 0.086	< 0.120	< 0.100	< 0.120	< 0.095	< 0.089	< 0.096	< 0.085
Trichloroethylene (TCE)								<0.13	< 0.100	< 0.120	< 0.086	< 0.120	< 0.100	< 0.120	0.0344 J	< 0.089	< 0.096	< 0.085
Xylene, m,p-								0.0945 J	< 0.100	< 0.120	< 0.086	< 0.120	< 0.100	< 0.120	NT	NT	NT	NT
Xylene, o-								0.0642 J	< 0.100	< 0.120	< 0.086	< 0.120	< 0.100	< 0.120	NT	NT	NT	NT
Total Xylenes								0.159	< 0.100	< 0.120	< 0.086	< 0.120	< 0.100	< 0.120	NT	NT	NT	NT
Total VOCs								0.895	0.829	0.359	ND	ND	ND	ND	0.178	ND	ND	0.0727 J
Volatile Petroleum Hydrocarbons (VPH)			MAVPH		mg/kg	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C5-C8 Aliphatics																		
Extractable Petroleum Hydrocarbons (EPH)			MAEPH		mg/kg	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C19-C36 Aliphatics																		
C11-C22 Aromatics																		
Other									NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Solids, Percent	EPA 160.3 M	%						87.1										
Specific Conductivity	EPA 120.1M	umhos/cm						NT										
Total Organic Carbon	CORP ENG 81M/SW9060M	mg/kg						4740										
pH	SW846 9045	su						NT										

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  - ft bgs = feet below ground surface.
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  - umhos/cm = micro-ohms per centimeter.
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Table 5-10  
Chemical Testing Results-Soil Vapor Samples  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Sample Name:  Sample Date: Collected By:  Units:		MW106								MW107						MW108					
		MW106		MW900 (FD of MW106)		MW106		SG-MW106		MW107		MW107		SG-MW107		MW108		MW108		SG-MW108	
		1/18/07 GEI		1/18/07 GEI		4/10/07 GEI		7/17/07 GEI		1/17/07 GEI		4/10/07 GEI		7/17/07 GEI		1/17/07 GEI		4/10/07 GEI		7/17/07 GEI	
		µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv	µg/m³	ppbv
Analyte	Method																				
Volatile Organic Compounds (VOCs)		TO-15																			
Chloroethane		<2.6	<1.0	<1.1	<0.40	< 0.53	< 0.20	< 5.3	< 2	5.5	2.1	7.9	3.0	0.71	0.27	<0.53	<0.20	< 0.53	< 0.20	< 0.53	< 0.20
Carbon tetrachloride		<6.3	<1.0	<2.5	<0.40	< 1.3	< 0.20	< 13	< 2	0.94 J	0.15 J	< 1.3	< 0.20	0.94 J	0.15 J	0.62 J	0.098 J	< 1.3	< 0.20	< 1.3	< 0.20
Dichloroethane,1,1-		12	3	3.7	0.92	2.6	0.64	8.1 G	2.0 G	97.5	24.1	123	30.3	12 G	2.9 G	<0.81	<0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethylene,1,1-		204	51.5	58.7	14.8	20	5.1	153 G	38.6 G	70.6	17.8	107	27.1	5.2 G	1.3 G	<0.79	<0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethane 1,2-		< 4.0	< 1.0	< 1.6	< 0.4	< 0.81	< 0.20	< 8.1	< 2.0	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethylene, trans, 1,2-		< 4.0	< 1.0	< 1.6	< 0.4	< 0.79	< 0.20	< 7.9	< 2.0	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis, 1,2-		<4.0	<1.0	<1.6	<0.40	< 0.79	< 0.20	< 7.9	< 2.0	<0.79	<0.20	0.63 J	0.16 J	< 0.79	< 0.20	<0.79	<0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethylene (PCE)		47	6.9	16	2.4	14	2.1	203 G	30 G	0.95 J	0.14 J	4.2	0.62	15 G	2.2 G	94.9	14	75.9	11.2	90.9	13.4
Trichloroethane,1,1,1-		520	95.3	170	31.2	70.4	12.9	406 G	74.5 G	4	0.74	4.4	0.81	4.1 G	0.76 G	<1.1	<0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		69.9	13	22	4.1	18	3.3	127 G	23.6 G	5.9	1.1	4.1	0.76	17 G	3.2 G	<1.1	<0.20	< 1.1	< 0.20	< 1.1	< 0.20
Vinyl Chloride		<2.6	<1.0	<1.0	<0.40	< 0.51	< 0.20	< 5.1	< 2	4.1	1.6	5.9	2.3	< 0.51	< 0.20	<0.51	<0.20	< 0.51	< 0.20	< 0.51	< 0.20

- General Notes:**
- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  - 2. µg/m<sup>3</sup> = micrograms per cubic meter.
  - 3. ppb = parts per billion by volume.
  - 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
  - 5. FD = field duplicate.

**Qualifying Notes:**

J The reported result is below the laboratory reporting limit and is estimated.

G The result is estimated due to duplicate precision outside the control limits.





Table 5-10  
Chemical Testing Results-Soil Vapor Samples  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Sample Name:  Sample Date: Collected By:  Units:		MW109				MW110		MW111						MW112		MW112A					
		MW109		MW109		MW110		MW111		MW111		SG-MW111		MW117		MW112A		MW112A		SG-MW112A	
		1/17/07 GEI		4/10/07 GEI		1/17/07 GEI		1/17/07 GEI		4/11/07 GEI		7/17/07 GEI		1/17/07 GEI		3/20/07 GEI		4/11/07 GEI		7/17/07 GEI	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																				
Volatile Organic Compounds (VOCs)	TO-15																				
Chloroethane		<53	<20	< 26	< 10	<0.53	<0.20	<530	<200	< 53	< 20	< 530	< 200	<0.53	<0.20	<26	<10	< 53	< 20	< 5.3	< 2.0
Carbon tetrachloride		<130	<20	< 63	< 10	<1.3	<0.20	<1300	<200	< 130	< 20	< 1300	< 200	0.69J	0.11 J	<63	<10	< 130	< 20	< 13	< 2.0
Dichloroethane,1,1-		<81	<20	< 40	< 10	<0.81	<0.20	943	233	67.2 J	16.6 J	< 810	< 200	<0.81	<0.20	429	106	155	38.2	359 G	88.6 G
Dichloroethylene,1,1-		<79	<20	< 40	< 10	<0.79	<0.20	619 J	156 J	< 79	< 20	< 790	< 200	<0.79	<0.20	821	207	318	80.3	777 G	196 G
Dichloroethane 1,2-		< 81	< 20	< 40	< 10	< 0.81	< 0.20	< 810	< 200	< 81	< 20	< 810	< 200	< 0.81	< 0.20	< 40	< 10	< 81	< 20	< 8.1	< 2.0
Dichloroethylene, trans, 1,2-		< 79	< 20	< 40	< 10	< 0.79	< 0.20	< 790	< 200	< 79	< 20	< 790	< 200	< 0.79	< 0.20	< 40	< 10	< 79	< 20	< 7.9	< 2.0
Dichloroethylene, cis, 1,2-		<79	<20	< 40	< 10	<0.79	<0.20	<790	<200	46.4 J	11.7 J	< 790	< 200	<0.79	<0.20	<40	<10	< 79	< 20	< 7.9	< 2.0
Tetrachloroethylene (PCE)		9020	1330	3950	582	<1.4	<0.20	269000	39700	52600	7760	178000 G	26200 G	2.8	0.41	6230	919	6240	920	8140	1200
Trichloroethane,1,1,1-		573	105	322	59.1	<1.1	<0.20	4650	853	715	131	2770	507	<1.1	<0.20	85.1	15.6	66.0 J	12.1 J	139 G	25.5 G
Trichloroethylene (TCE)		<110	<20	31 J	5.7 J	<1.1	<0.20	2600	484	466	86.7	1520	282	<1.1	<0.20	951	177	505	93.9	2030 G	377 G
Vinyl Chloride		<51	<20	< 26	< 10	<0.51	<0.20	<510	<200	< 51	< 20	< 510	< 200	<0.51	<0.20	<26	<10	< 51	< 20	< 5.1	< 2

- General Notes:**
- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  - 2. µg/m<sup>3</sup> = micrograms per cubic meter.
  - 3. ppb = parts per billion by volume.
  - 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
  - 5. FD = field duplicate.

**Qualifying Notes:**

J The reported result is below the laboratory reporting limit and is estimated.

G The result is estimated due to duplicate precision outside the control limits.





Table 5-10  
Chemical Testing Results-Soil Vapor Samples  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Sample Name:  Sample Date: Collected By:  Units:		MW113				MW114						MW115		MW115R					
		MW113		MW113		MW114		MW114		SG-MW114		MW115		MW115		MW115		SG-MW115R	
		2/19/07 GEI		4/10/07 GEI		2/19/07 GEI		4/10/07 GEI		7/17/07 GEI		2/19/07 GEI		3/20/07 GEI		4/10/07 GEI		7/17/07 GEI	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																		
Volatile Organic Compounds (VOCs)	TO-15																		
Chloroethane		< 5.3	< 2.0	< 0.53	< 0.20	< 5.3	< 2.0	0.77	0.29	< 0.53	< 0.20	< 5.3	< 2.0	<0.53	<0.20	< 0.53	< 0.20	< 0.53	< 0.20
Carbon tetrachloride		< 13	< 2.0	< 1.3	< 0.20	< 31	< 5.0	< 1.3	< 0.20	0.69 J	0.11 J	< 13	< 2.0	<1.3	<0.20	< 1.3	< 0.20	< 1.3	< 0.20
Dichloroethane, 1,1-		8.1	2.0	0.57 J	0.14 J	< 8.1	< 2.0	< 0.81	< 0.20	< 0.81	< 0.20	< 8.1	< 2.0	0.65 J	0.16 J	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethylene, 1,1-		21	5.2	< 0.79	< 0.20	< 7.9	< 2.0	< 0.79	< 0.20	< 0.79	< 0.20	< 7.9	< 2.0	1.3	0.33	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethane 1,2-		< 8.1	< 2.0	< 0.81	< 0.20	< 8.1	< 2.0	< 0.81	< 0.20	< 0.81	< 0.20	< 8.1	< 2.0	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethylene, trans, 1,2-		< 7.9	< 2.0	< 0.79	< 0.20	< 7.9	< 2.0	< 0.79	< 0.20	< 0.79	< 0.20	< 7.9	< 2.0	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis, 1,2-		<7.9	<2.0	< 0.79	< 0.20	<7.9	< 2.0	< 0.79	< 0.20	< 0.79	< 0.20	<7.9	<2	<0.79	<0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethylene (PCE)		8.8 J	1.3 J	3.7	0.55	< 14	< 2.0	12	1.7	17	2.5	42	6.2	12	1.8	< 1.4	< 0.20	71.2	10.5
Trichloroethane, 1,1,1-		11	2.0	< 1.1	< 0.20	< 11	< 2.0	< 1.1	< 0.20	0.76 J	0.14 J	< 11	< 2.0	<1.1	<0.20	< 1.1	< 0.20	< 1.1	< 0.20
Trichloroethylene (TCE)		16	3.0	< 1.1	< 0.20	4	0.75	0.86 J	0.16 J	1.5	0.27	15	2.7	<1.1	<0.20	< 1.1	< 0.20	0.75 J	0.14 J
Vinyl Chloride		< 5.1	< 2.0	< 0.51	< 0.20	< 5.1	< 2.0	0.36 J	0.14 J	< 0.51	< 2.0	< 5.1	< 2.0	<0.51	<0.20	< 0.51	< 0.20	< 0.51	< 0.20

- General Notes:**
- 1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  - 2. µg/m<sup>3</sup> = micrograms per cubic meter.
  - 3. ppb = parts per billion by volume.
  - 4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
  - 5. FD = field duplicate.

- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.
  - G The result is estimated due to duplicate precision outside the control limits.





**Table 5-11**  
**Summary of Meteorological Data - Soil Vapor Sampling**  
50 Tufts Street  
Somerville, Massachusetts

Sample Location	Sample Date	Associated Sample ID	Temperature (°F):		Barometric Pressure (in. Hg):		Prevailing Wind Direction:		General Weather Conditions:	
			Start	End	Start	End	Start	End	Start	End
MW106	4/10/2007	MW106	34	35	29.9	29.91	NM	NM	sunny	overcast
MW106	07/17/2007	SG-MW106	86.3	86.0	30.07	30.06	calm	calm	overcast	cloudy
MW107	4/10/2007	MW107	34	35	29.9	29.91	NM	NM	sunny	overcast
MW107	07/17/2007	SG-MW107	86.3	86.0	30.07	30.06	calm	calm	cloudy	cloudy
MW108	4/10/2007	MW108	34	35.1	29.9	29.91	NM	NM	sunny	overcast
MW108	07/17/2007	SG-MW108	86.3	86.0	30.07	30.06	calm	calm	cloudy	cloudy
MW109	4/10/2007	MW109	39	39	29.94	29.94	NM	NM	sunny	overcast
MW111	4/11/2007	MW111	39.9	42.5	30.16	30.15	NM	NM	sunny	sunny
MW111	07/17/2007	SG-MW111	86.0	85.6	30.06	30.05	calm	calm	overcast	partly sunny
MW112A	4/11/2007	MW112A	40.5	42.5	30.16	30.15	NM	NM	sunny	sunny
MW112A	07/17/2007	SG-MW112A	86.0	85.6	30.06	30.05	calm	calm	overcast	partly sunny
MW113	4/10/2007	MW113	35.1	36	29.91	29.93	NM	NM	sunny	overcast
MW114	4/10/2007	MW114	36.5	39	29.94	29.94	NM	NM	sunny	overcast
MW114	07/17/2007	SG-MW114	86.3	86.0	30.07	30.06	calm	calm	hazy	overcast
MW115	4/10/2007	MW115	37	39	29.94	29.94	NM	NM	sunny	overcast
MW115R	07/17/2007	SG-MW115R	86.3	86.0	30.07	30.06	calm	calm	hazy	overcast
MW116	4/11/2007	MW116	42	44	30.15	30.15	NM	NM	sunny	sunny
MW116	07/17/2007	SG-MW116	85.6	87.6	30.05	30.05	West	West	partly sunny	sunny
MW117S	07/17/2007	SG-MW117S	89.0	85.6	30.05	30.05	West	West	partly cloudy	partly sunny
MW118S	07/17/2007	SG-MW118S	85.6	87.6	30.05	30.05	West	West	partly sunny	partly sunny
MW119S	8/28/2007	SG-MW119S	68	73	30.2	30.21	calm	calm	sunny	sunny
MW120S	8/28/2007	SG-MW120S	68	73	30.2	30.21	calm	calm	sunny	sunny

**General Notes:**

1. ° F = degrees Fahrenheit.
2. in. Hg = inches of mercury.
3. Temperatures were measured in the field using a hand-held thermometer.
4. Barometric pressures were measured in the field with a Sensor Instrument Nimbus Trademark digital barometer.
5. NM = Not Measured.





Table 5-10  
Chemical Testing Results-Soil Vapor Samples  
50 Tufts Street  
Somerville, Massachusetts

Sample Location: Sample Name:  Sample Date: Collected By:  Units:		MW116						MW117S		MW118S				MW119S		MW120S	
		MW116		MW116		SG-MW116		SG-MW117S		SG-MW118S		SG-MW118S		SG-MW119S		SG-MW120S	
		3/20/07 GEI		4/11/07 GEI		7/17/07 GEI		7/17/07 GEI		7/17/07 GEI		8/31/07 GEI		8/28/07 GEI		8/28/07 GEI	
		µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv	µg/m <sup>3</sup>	ppbv
Analyte	Method																
Volatile Organic Compounds (VOCs)	TO-15																
Chloroethane		< 26	< 10	< 53	< 20	28	10.6	< 0.53	< 0.20	< 0.53	< 0.20	< 0.53	< 0.20	1.6	0.62	0.58	0.22
Carbon tetrachloride		< 63	< 10	< 130	< 20	< 13	< 2.0	< 1.3	< 0.20	4.8	0.77	2.2	0.35	< 1.3	< 0.20	0.62 J	0.098 J
Dichloroethane,1,1-		378	93.5	923	228	1490 G	367 G	4.5	1.1	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	51.8	12.8
Dichloroethylene,1,1-		876	221	1570	395	634 G	160 G	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	1.1	0.29
Dichloroethane 1,2-		< 40	< 10	< 81	< 20	5.7 J	1.4 J	< 0.81	< 0.20	< 0.81	< 0.20	< 0.81	< 0.20	0.85	0.21	0.81	0.2
Dichloroethylene, trans, 1,2-		< 40	< 10	< 79	< 20	151	38.1	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Dichloroethylene, cis, 1,2-		254	64	2620	661	1740 G	438 G	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethylene (PCE)		11100	1630	21500 G	3170 G	25500 G	3760 G	12	1.7	231	34.1	155	22.9	12	1.7	18	2.7
Trichloroethane,1,1,1-		192	35.2	492	90.2	1020 G	187 G	1.4	0.26	8.2	1.5	6	1.1	< 1.1	< 0.20	0.55J	0.10 J
Trichloroethylene (TCE)		2140	398	6400	1190	2620 G	488 G	4.2	0.78	2.1	0.39	< 1.1	< 0.20	1.2	0.23	4.8	0.90
Vinyl Chloride		89	34.8	514	201	64.7	25.3	< 0.51	< 0.20	< 0.51	< 0.20	< 0.51	< 0.20	1.2	0.47	0.51	0.20

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
  2. µg/m<sup>3</sup> = micrograms per cubic meter.
  3. ppb = parts per billion by volume.
  4. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
  5. FD = field duplicate.
- Qualifying Notes:**
- J The reported result is below the laboratory reporting limit and is estimated.
- G The result is estimated due to duplicate precision outside the control limits.





Table 5-12  
Monthly Groundwater Elevations  
50 Tufts Street  
Somerville, Massachusetts

Location Name	Well Screen Interval (ft bgs)	Gauging Date:	5/15/06		5/16/06		5/23/06		5/31/06		7/24/06		8/1/06		8/3/06		8/16/06		9/29/06		10/4/06	
		Elevation of Measuring Point (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)
MW-1	unknown	25.9	9.69	16.21	9.53	16.37	10.9	15	11.39	14.51	--	--	--	--	--	--	11.9	14	--	--	11.88	14.02
MW-2	unknown	25.38	8.99	16.39	10.36	15.02	Dry	Dry	Dry	Dry	--	--	--	--	--	--	Dry	Dry	--	--	--	--
MW-3	unknown	25.31	8.88	16.43	9.32	15.99	11.16	14.15	12.71	12.6	--	--	--	--	--	--	13.73	11.58	--	--	13.75	11.56
MW-101	9-19	26.75	--	--	10.56	16.19	11.53	15.22	12.1	14.65	12.33	14.42	12.51	14.24	13.47	13.28	12.78	13.97	12.85	13.9	12.76	13.99
MW-102	6-16	18.89	--	--	6.62	12.27	6.86	12.03	7.44	11.45	7.93	10.96	8.16	10.73	9.11	9.78	8.51	10.38	8.68	10.21	8.52	10.37
MW-103	6-16	19.47	--	--	9.5	9.97	10.37	9.1	10.74	8.73	11.15	8.32	11.31	8.16	12.24	7.23	11.72	7.75	11.98	7.49	11.92	7.55
MW-104	5-15	17.67	--	--	--	--	7.93	9.74	8.89	8.78	9.06	8.61	9.39	8.28	10.29	7.38	9.87	7.8	9.95	7.72	9.92	7.75
MW-105	19-29	38.84	--	--	19.49	19.35	20.21	18.63	20.7	18.14	21.18	17.66	21.43	17.41	22.41	16.43	21.91	16.93	22.27	16.57	22.18	16.66
MW-106	9 - 19	26.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-107	2 - 12	14.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-108	2 - 12	12.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-109	3 - 13	24.12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-110	3 - 13	15.58	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-111	4 - 14	18.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-112	3 - 10	18.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-112a	4-19	17.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-113	10-20	26.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-114	7-17	29.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-115	10-25	27.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-116	5-15	13.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117S	5 - 20	21.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117T	35 - 45	21.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-117D	60 - 70	21.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-118S	3 - 14	15.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-118T	39.5 - 49.5	15.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-118D	70 - 80	15.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-119S	5 - 20	11.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-119T	42 - 47	11.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-120S	5 - 20	12.54	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-120D	28 - 38	12.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GEO-1	5 - 20	25.88	9.69	16.19	9.9	15.98	10.92	14.96	11.36	14.52	--	--	--	--	--	--	11.82	14.06	--	--	11.85	14.03
GEO-2	5 - 20	26.54	9.76	16.78	--	--	11.38	15.16	11.91	14.63	--	--	--	--	--	--	12.51	14.03	--	--	12.51	14.03
GEO-3	5 - 20	25.64	10.43	15.21	9.59	16.05	9.87	15.77	10.67	14.97	11.67	13.97	11.85	13.79	12.84	12.8	12.25	13.39	12.37	2.84	12.35	13.29
GEO-4	4 - 19	21.69	--	--	7.79	13.9	9.85	11.84	10.78	10.91	11.25	10.44	11.45	10.24	12.43	9.26	11.9	9.79	12.09	9.6	12.04	9.65
GEO-5	5 - 20	20.14	--	--	6.78	13.36	9.08	11.06	9.96	10.18	10.29	9.85	10.56	9.58	11.51	8.63	10.99	9.15	11.21	8.93	11.15	8.99
GEO-6	5 - 20	17.62	--	--	5.66	11.96	7.39	10.23	8.23	9.39	8.43	9.19	8.73	8.89	9.64	7.98	9.25	8.37	9.41	8.21	9.26	8.36
SH-1	9 - 14	29.55	10.15	19.4	11.4	18.15	Dry	Dry	Dry	Dry	--	--	--	--	--	--	Dry	Dry	--	--	Dry	Dry
SH-2	7 - 14	29.64	5.71	23.93	7.86	21.78	12.07	17.57	12.22	17.42	--	--	--	--	--	--	11.98	17.66	--	--	12	17.64
SH-3	8 - 13	29.66	7.54	22.12	8.56	21.1	12.73	16.93	12.96	16.7	--	--	--	--	--	--	Dry	Dry	--	--	Dry	Dry
SH-4	11 - 16	29.63	13.53	16.1	13.48	16.15	14.48	15.15	15.02	14.61	--	--	--	--	--	--	15.09	14.54	--	--	15.1	14.53
SH-5	8 - 13	29.63	Dry	Dry	--	--	12.99	16.64	13.03	16.6	--	--	--	--	--	--	Dry	Dry	--	--	Dry	Dry
SH-MW1	10 - 30	24.02	6.72	17.3	--	--	11.44	12.58	12.18	11.84	--	--	--	--	--	--	13.09	10.93	--	--	13.17	10.85
SH-MW2	10 - 25	24.27	9.33	14.94	--	--	12.05	12.22	12.69	11.58	--	--	--	--	--	--	13.38	10.89	--	--	13.41	10.86
SH-MW3	10 - 24	22.31	7.8	14.51	--	--	10.26	12.05	11.03	11.28	--	--	--	--	--	--	13	9.31	--	--	12.04	10.27
MW201	11-21	27.51	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW202	10.5-20.5	27.82	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW203	6-18	21.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

- General Notes:**
1. ft = feet.
  2. bgs = below ground surface.
  3. NGVD = National Geodetic Vertical Datum of 1929.
  4. The top of the PVC riser was used as the measuring point for depth to groundwater.
  5. "--" = Well not yet installed, or not measured.







Geotechnical  
Environmental and  
Water Resources  
Engineering

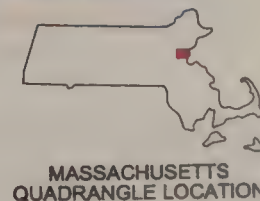








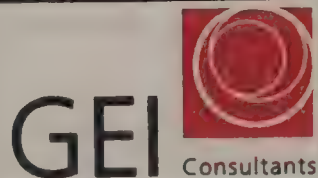
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SCALE, FEET



This Image provided by MassGIS is taken from  
U.S.G.S. Topographic 7.5 X 15 Minute Series  
Boston North, MA Quadrangle, 1985.  
Datum is National Geodetic Vertical Datum (NGVD).  
Contour Interval is 3 Meters.

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50 Tufts Street  
Somerville, Massachusetts

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SITE LOCATION MAP

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Fig. 1-1





Table 5-12  
Monthly Groundwater Elevations  
50 Tufts Street  
Somerville, Massachusetts

Location Name	Well Screen Interval (ft bgs)	Gauging Date: Elevation of Measuring Point (ft NGVD)	11/14/05		12/12/06		1/16/07		2/12/07		3/14/07		4/12/07		5/29/07		6/26/07		7/16/07		8/22/07		9/27/07	
			Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)	Depth to GW (ft)	Elevation of GW (ft NGVD)
MW-1	unknown	25.9	--	--	--	--	11.6	14.3	--	--	--	--	11.39	14.51	11.41	14.49	11.8	14.1	12.04	13.86	--	--	12.26	---
MW-2	unknown	25.38	--	--	--	--	Destroyed	Destroyed	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	unknown	25.31	--	--	--	--	13.05	12.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-101	9-19	26.75	12.25	14.5	12.57	14.18	12.4	14.35	12.81	13.94	12.34	14.41	12.11	14.64	12.17	14.58	12.62	14.13	12.85	13.9	13.03	13.72	13.17	13.58
MW-102	6-16	18.89	7.64	11.25	8.01	10.88	7.72	11.17	8.52	10.37	--	--	7.46	11.43	6.72	12.17	8.36	10.53	8.74	10.15	9.08	9.81	9.35	9.54
MW-103	6-16	19.47	11	8.47	11.21	8.26	10.88	8.59	11.74	7.73	11	8.47	10.66	8.81	10.81	8.66	11.47	8	11.92	7.55	12.3	7.17	12.63	6.84
MW-104	5-15	17.67	--	--	--	--	8.73	8.94	--	--	--	--	8.75	8.92	NM	NM	9.62	8.05	10.09	7.58	10.36	7.31	10.61	7.06
MW-105	19-29	38.84	21.16	17.68	21.76	17.08	21.46	17.38	22.03	16.81	21.56	17.28	20.88	17.96	20.86	17.98	21.55	17.29	22.13	16.71	22.79	16.05	23.18	15.66
MW-106	9 - 19	26.33	--	--	--	--	--	--	12.27	14.06	12.91	13.42	11.65	14.68	11.69	14.64	12.07	14.26	12.33	14	12.48	13.85	12.61	13.72
MW-107	2 - 12	14.63	--	--	--	--	--	--	4.54	10.09	4.5	10.13	4.49	10.14	4.46	10.17	4.48	10.15	4.52	10.11	4.75	9.88	4.51	10.12
MW-108	2 - 12	12.74	--	--	--	--	--	--	4.93	7.81	4.02	8.72	9.91	2.83	4.25	8.49	5.06	7.68	6.59	6.15	6.25	6.49	6.28	6.46
MW-109	3 - 13	24.12	--	--	--	--	--	--	12.07	12.05	11.27	12.85	10.27	13.85	10.73	13.39	11.76	12.36	12.24	11.88	Dry	Dry	Dry	Dry
MW-110	3 - 13	15.58	--	--	--	--	--	--	5.99	9.59	1.46	14.12	1.04	14.54	2.56	13.02	6.57	9.01	7.17	8.41	7.86	7.72	8.37	7.21
MW-111	4 - 14	18.95	--	--	--	--	--	--	11.38	7.57	10.62	8.33	10.65	8.3	10.68	8.27	11.11	7.84	11.54	7.41	11.96	6.99	12.34	6.61
MW-112	3 - 10	18.16	--	--	--	--	--	--	Dry	Dry	8.01	10.15	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW-112a	4-19	17.78	--	--	--	--	--	--	--	--	12.76	5.02	12.76	5.02	12.67	5.11	12.81	4.97	12.88	4.9	--	--	12.95	4.83
MW-113	10-20	26.16	--	--	--	--	--	--	--	--	11.66	14.5	11.44	14.72	11.51	14.65	11.99	14.17	12.22	13.94	12.43	13.73	12.58	13.58
MW-114	7-17	29.43	--	--	--	--	--	--	--	--	12.67	16.76	11.27	18.16	11.53	17.9	12.88	16.55	15.57	13.86	14.24	15.19	14.84	14.59
MW-115	10-25	27.15	--	--	--	--	--	--	--	--	17.19	9.96	16.21	10.94	16.63	10.52	17.42	9.73	17.97	9.18	18.38	8.77	18.81	8.34
MW-116	5-15	13.45	--	--	--	--	--	--	--	--	8.78	4.67	8.34	5.11	8.65	4.8	8.76	4.69	NM	NM	8.85	4.6	8.91	4.54
MW-117S	5 - 20	21.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.27	6.67	15.7	6.24	16.03	5.91
MW-117T	35 - 45	21.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.95	5.92	16.38	5.49	16.81	5.06
MW-117D	60 - 70	21.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.87	5.91	16.26	5.52	16.69	5.09
MW-118S	3 - 14	15.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.64	3.88	9.84	5.68	10.2	5.32
MW-118T	39.5 - 49.5	15.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10.36	4.94	10.51	4.79	10.74	4.56
MW-118D	70 - 80	15.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10.18	4.97	10.32	4.83	10.55	4.6
MW-119S	5 - 20	11.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.91	6.83	4.99	6.75
MW-119T	42 - 47	11.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.45	5.22	6.8	4.87
MW-120S	5 - 20	12.54	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.25	7.29	5.35	7.19
MW-120D	28 - 38	12.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.21	8.24
GEO-1	5 - 20	25.88	--	--	--	--	11.55	14.33	--	--	--	--	11.36	14.52	11.38	14.5	11.73	14.15	11.93	13.95	12.1	13.78	12.21	13.67
GEO-2	5 - 20	26.54	--	--	--	--	12.2	14.34	--	--	--	--	11.97	14.57	11.99	14.55	12.4	14.14	13.6	12.94	12.81	13.73	12.91	13.63
GEO-3	5 - 20	25.64	11.63	14.01	11.72	13.92	11.58	14.06	12.21	13.43	11.49	14.15	10.76	14.88	11.04	14.6	113.94	-88.3	NM	NM	12.7	12.94	12.94	12.7
GEO-4	4 - 19	21.69	10.58	11.11	11.31	10.38	10.77	10.92	11.83	9.86	11.03	10.66	10.51	11.18	10.87	10.82	11.64	10.05	12.09	9.6	12.55	9.14	13.02	8.67
GEO-5	5 - 20	20.14	9.47	10.67	10.48	9.66	9.73	10.41	11.02	9.12	10.15	9.99	9.7	10.44	10.01	10.13	10.79	9.35	11.25	8.89	11.74	8.4	11.18	8.96
GEO-6	5 - 20	17.62	7.65	9.97	8.82	8.8	8.11	9.51	9.3	8.32	8.54	9.08	8.32	9.3	8.25	9.37	8.9	8.72	9.5	8.12	9.92	7.7	10.22	7.4
SH-1	9 - 14	29.55	--	--	--	--	Dry	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-2	7 - 14	29.64	--	--	--	--	Dry	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-3	8 - 13	29.66	--	--	--	--	Dry	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-4	11 - 16	29.63	--	--	--	--	Dry	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-5	8 - 13	29.63	--	--	--	--	Dry	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SH-MW1	10 - 30	24.02	--	--	--	--	12.21	11.81	--	--	--	--	12.01	12.01	12.26	11.76	--	--	--	--	--	--	--	--
SH-MW2	10 - 25	24.27	--	--	--	--	12.73	11.54	--	--	--	--	12.61	11.66	12.74	11.53	13.25	11.02	13.48	10.79	13.72	10.55	14.04	10.23
SH-MW3	10 - 24	22.31	--	--	--	--	11.04	11.27	--	--	--	--	10.81	11.5	NM	NM	11.72	10.59	12.08	10.23	12.43	9.88	12.79	9.52
MW201	11-21	27.51	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	13.71	13.8	13.83	13.68
MW202	10.5-20.5	27.82	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	13.99	13.83	14.08	13.74
MW203	6-18	21.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14.05	7.75	14.39	7.41

- General Notes:**
1. ft = feet.
  2. bgs = below ground surface.
  3. NGVD = National Geodetic Vertical Datum of 1929.
  4. The top of the PVC riser was used as the measuring point for depth to groundwater.
  5. "—" = Well not yet installed, or not measured.







**LEGEND:**

- CHAIN LINK FENCE
- 138 ROOM NUMBER AT CAPUANO SCHOOL
- BOUNDARY OF COMMUNITY GARDENS
- 84 STREET ADDRESS

**GENERAL NOTES:**

- STREET AND PROPERTY LINES BASED ON SOMERVILLE ASSESSORS MAPS AND ARE BEST FIT RELATIVE TO THE LOCATION OF THE 50 TUFTS ST. BUILDING.
- CAPUANO CENTER BUILDING IS BASED ON DRAWING A0.2 FROM THE ARCHITECTURAL BID SET OF "THE EDGERTY EARLY CHILDHOOD DEVELOPMENT CENTER" BY HMFH ARCHITECTS, INC., DATED AUGUST 10, 2001.
- CAPUANO CENTER COMMUNITY GARDEN LOCATIONS WERE ESTABLISHED BY AN ON THE GROUND SURVEY BY BSC GROUP, INC. IN JULY 2007.

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SITE AREA

Project 04516-2 November 2007 Fig. 1-2





- GENERAL NOTES:**
1. BUILDINGS, STREET, AND PROPERTY LINES BASED ON SOMERVILLE ASSESSORS MAPS.
  2. CAPUANO CENTER BUILDING IS BASED ON DRAWING A0.2 FROM THE ARCHITECTURAL BID SET OF "THE EDGERTY EARLY CHILDHOOD DEVELOPMENT CENTER" BY HMFH ARCHITECTS, INC., DATED AUGUST 10, 2001.
  3. BASE PLAN MODIFIED BY GEI TO SHOW APPROXIMATE AIR SAMPLING LOCATIONS.

**MICHAEL E. CAPUANO  
EARLY CHILDHOOD CENTER**

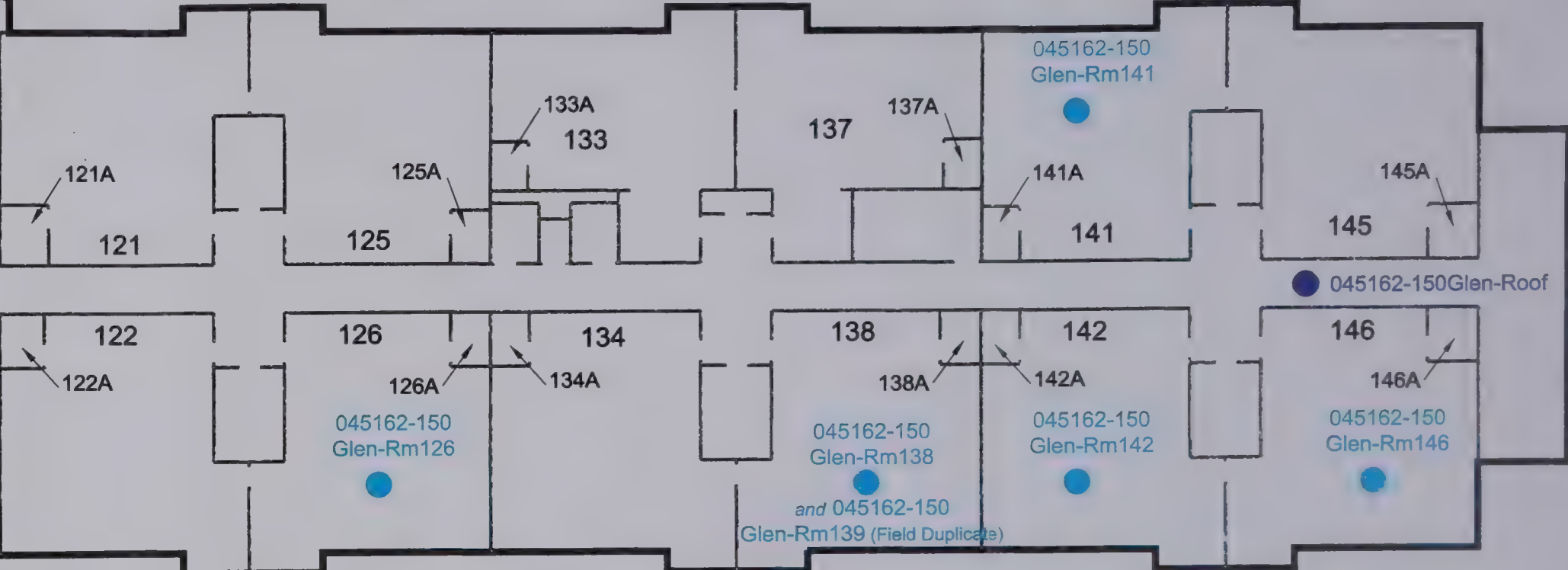
GYMNASIUM

CAFETERIA

KITCHEN

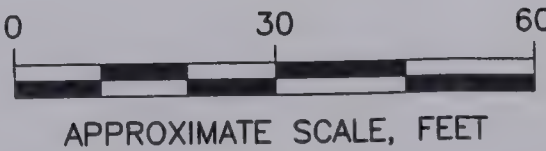
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35-37



**LEGEND:**

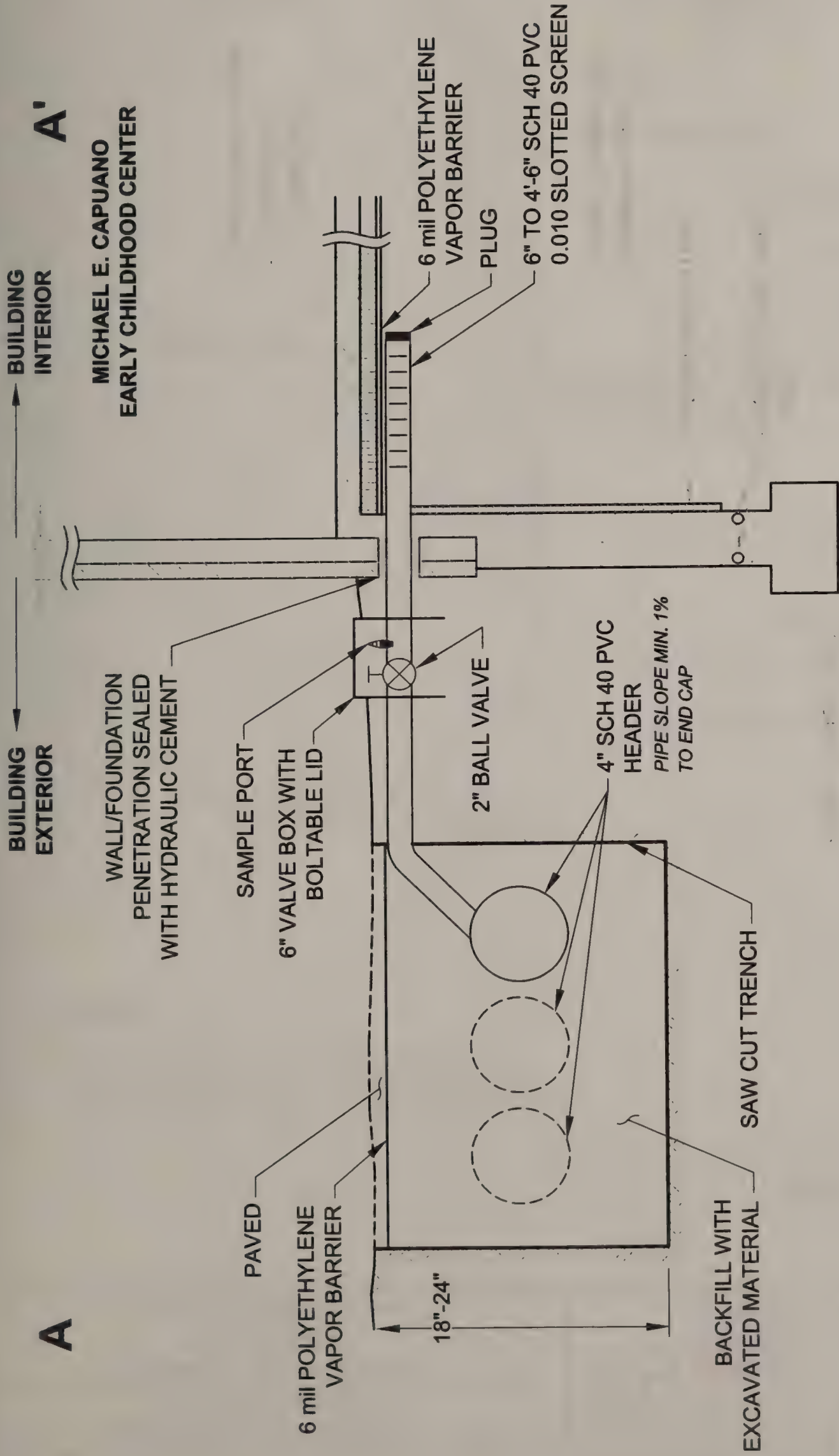
- INDOOR AIR SAMPLE (4-HOUR SUMMA CANISTER)
- OUTDOOR AIR SAMPLE (4-HOUR SUMMA CANISTER)
- 138 ROOM NUMBER AT CAPUANO CENTER



IRA Status Report No. 4 50 Tufts Street Somerville, Massachusetts		MONTHLY INDOOR AIR SAMPLING LOCATIONS	
UniFirst Corporation Wilmington, Massachusetts	Project 04516-2	November 2007	Fig. 2-1







### NOTES:

1. BASE PLAN FROM FIGURE TITLED "EDGERLY EARLY CHILDHOOD DEVELOPMENT CENTER SOMERVILLE, MASSACHUSETTS FOUNDATION SECTIONS" BY HMFH ARCHITECTS DATED AUGUST 10, 2001.
2. BASE PLAN HAS BEEN MODIFIED BY GEI TO SHOW THE APPROXIMATE LOCATION AND DETAILS OF PORTIONS OF THE SSDS COMPONENTS.

### SECTION A - A'

Not To Scale

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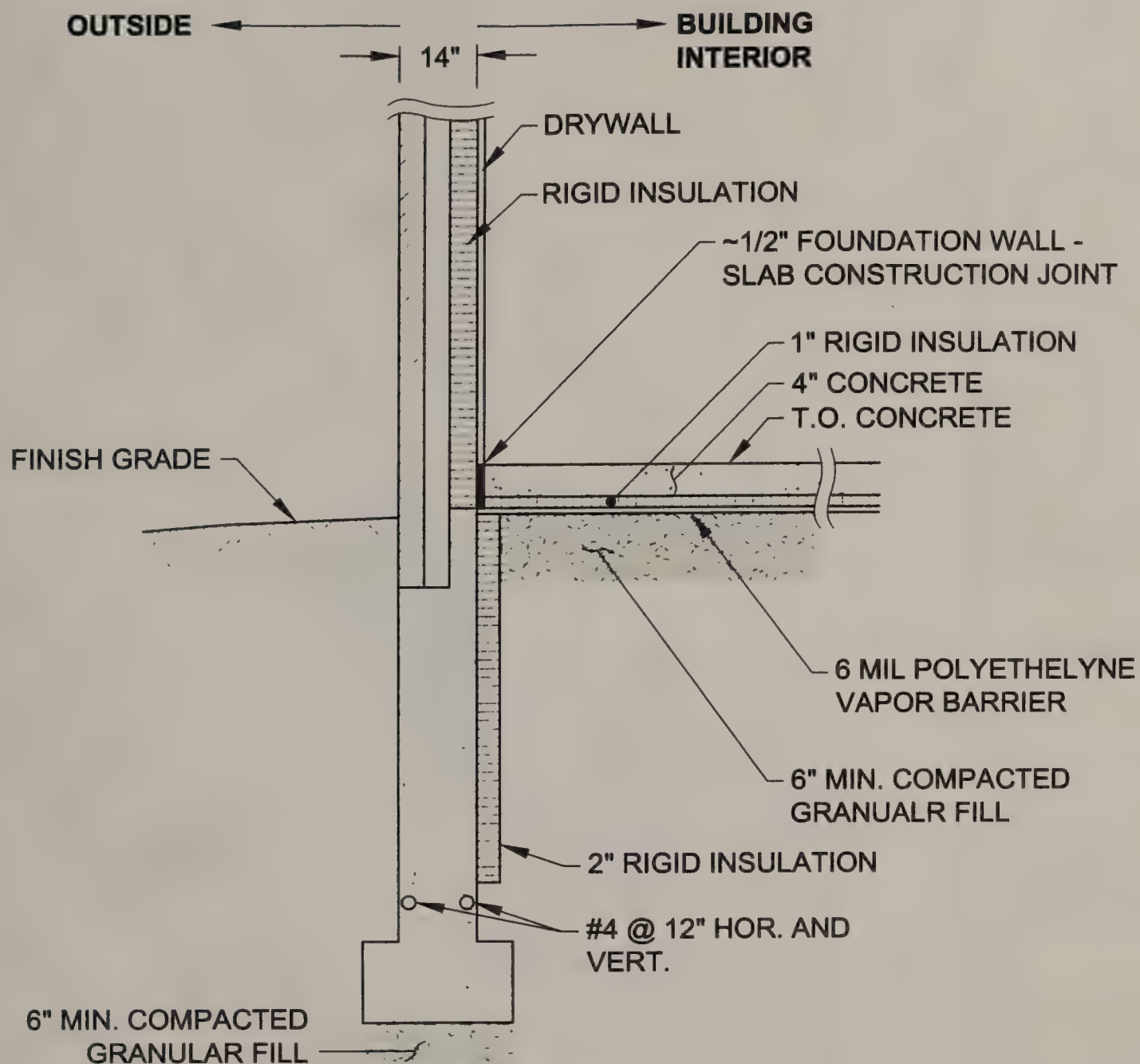


SSDS TRENCH  
EXCAVATION AND WALL  
PENETRATION DETAILS

Project 04516-2 November 2007 Fig. 2-3







### **NOTES:**

1. BASE PLAN, MODIFIED BY GEI, FROM FIGURE TITLED "EDGERLY EARLY CHILDHOOD DEVELOPMENT CENTER SOMERVILLE, MASSACHUSETTS FOUNDATION SECTIONS" BY HMFH ARCHITECTS DATED AUGUST 10, 2001.

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Project 04516-2

FOUNDATION WALL -  
SLAB CONSTRUCTION  
JOINT DETAIL

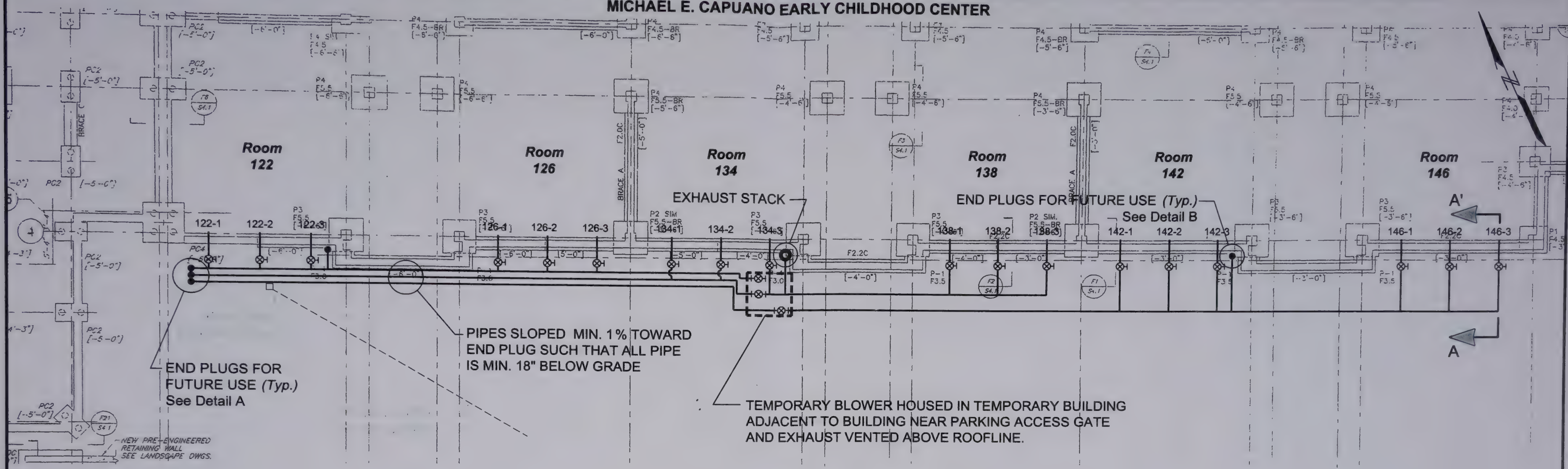
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Fig. 2-4

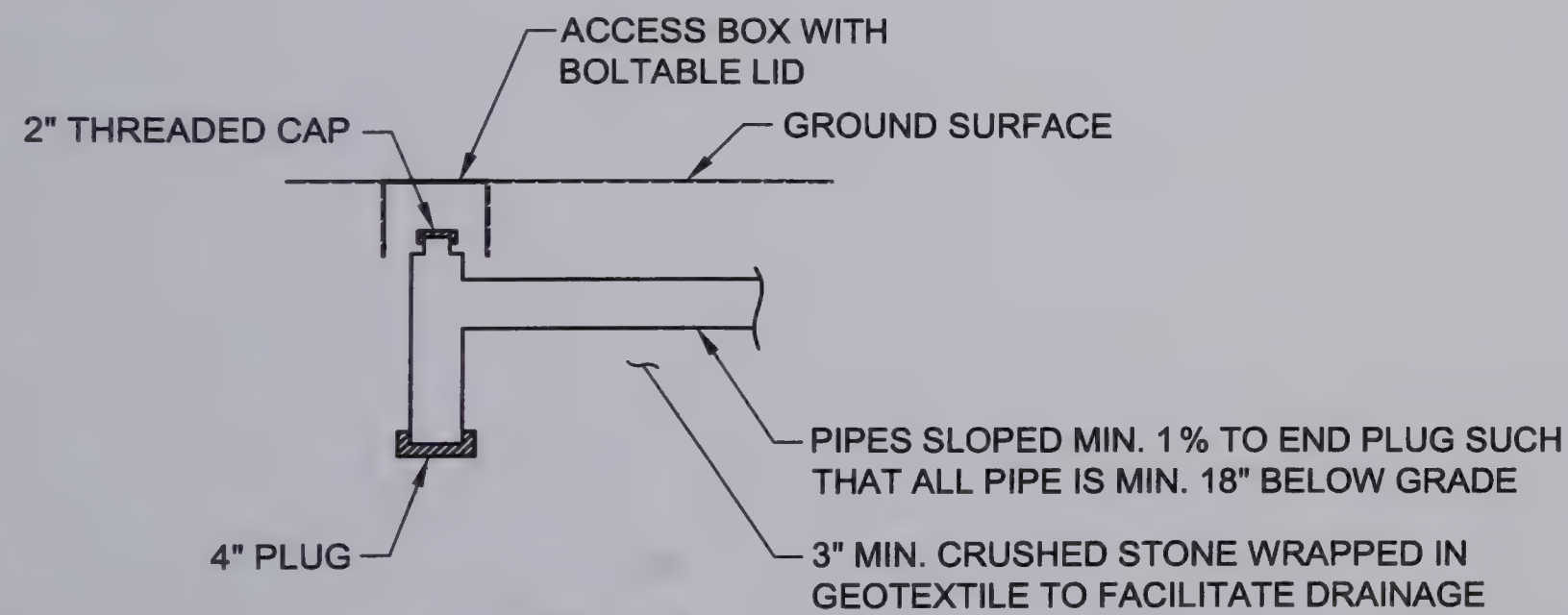




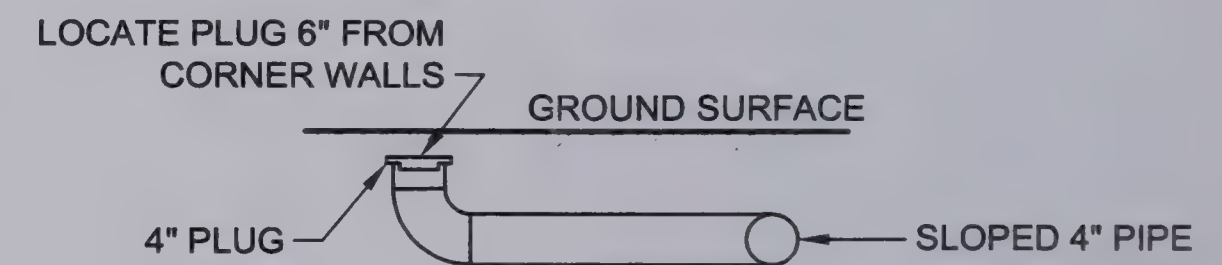
# MICHAEL E. CAPUANO EARLY CHILDHOOD CENTER



**PLAN**  
Not To Scale



**DETAIL A**  
Not To Scale



**DETAIL B**  
Not To Scale

## **NOTES:**

1. FOR SECTION A-A SEE FIG. 2-3.
2. BASE PLAN FROM FIGURE TITLED "EDGERLY EARLY CHILDHOOD DEVELOPMENT CENTER SOMERVILLE, MASSACHUSETTS FOUNDATION PLAN - PART B" BY HMFH ARCHITECTS DATED AUGUST 10, 2001.
3. BASE PLAN HAS BEEN MODIFIED BY GEI TO SHOW THE APPROXIMATE LOCATION OF THE SSDS COMPONENTS.

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SSDS EXTERIOR PIPING  
SCHEMATIC

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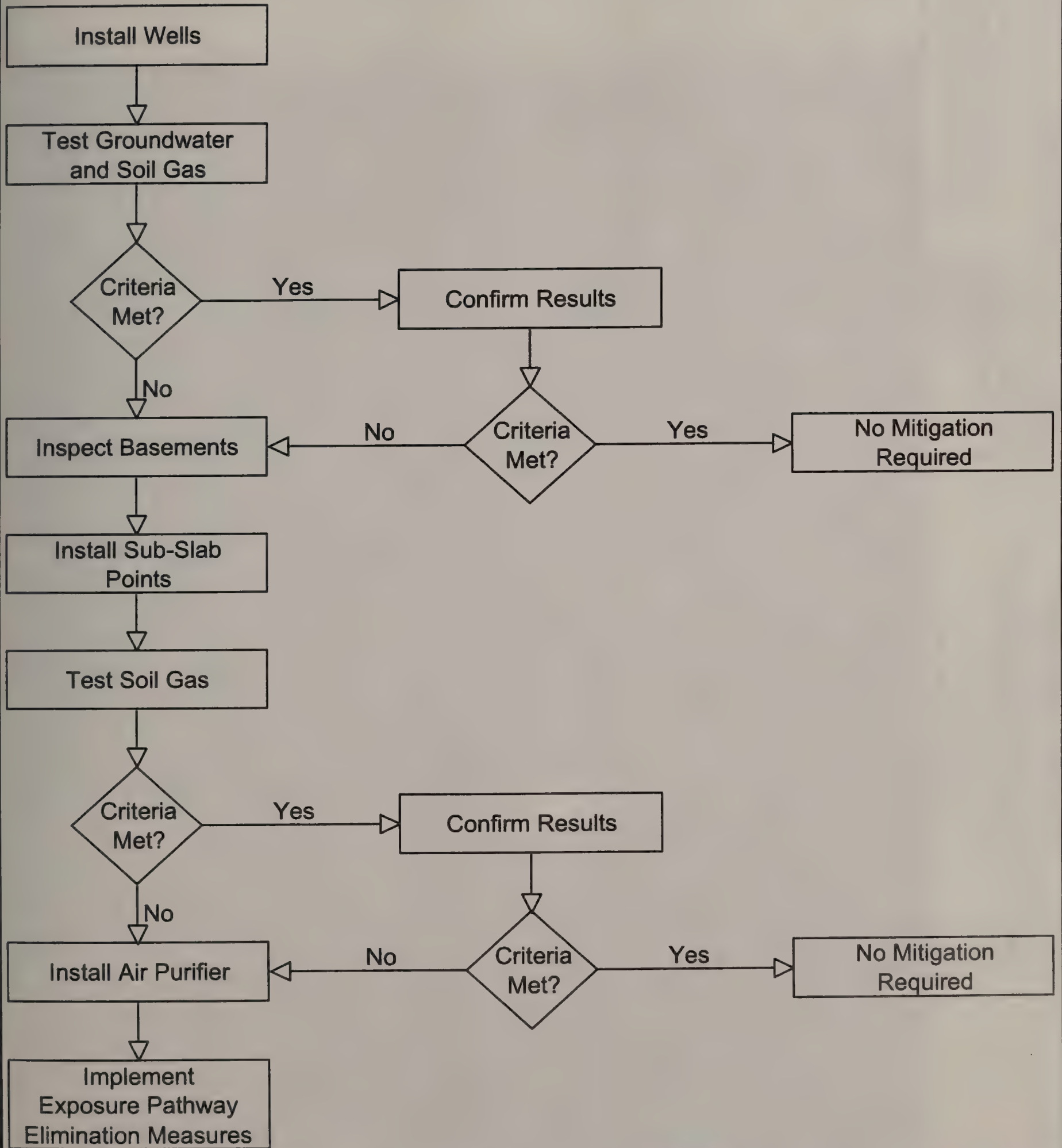
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Fig. 2-2





# Building Mitigation Process



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Project 04516-2

EVALUATION PROCESS  
FOR POTENTIAL VAPOR  
INTRUSION

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Fig. 3-2







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PHOTOGRAPH OF TYPICAL  
SUB-SLAB SOIL VAPOR  
SAMPLING POINT

Project 04516-2

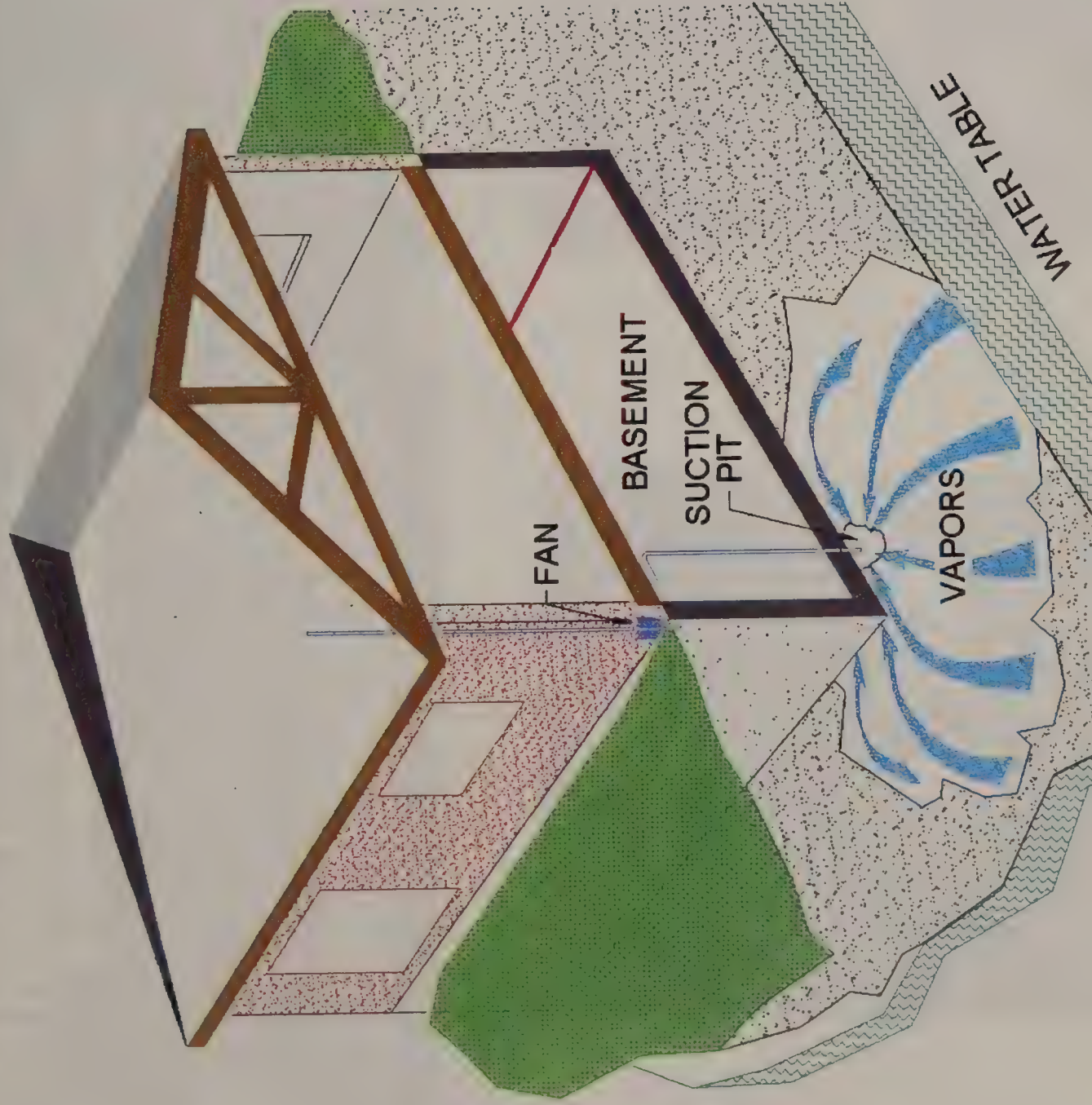
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Fig. 3-3





# Sub-Slab Depressurization



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SCHEMATIC OF  
RESIDENTIAL SUB-SLAB  
DEPRESSURIZATION SYSTEM

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PHOTOGRAPHS OF TYPICAL  
RESIDENTIAL EXTERIOR  
EXHAUST PIPING FOR SUB-SLAB  
DEPRESSURIZATION SYSTEM

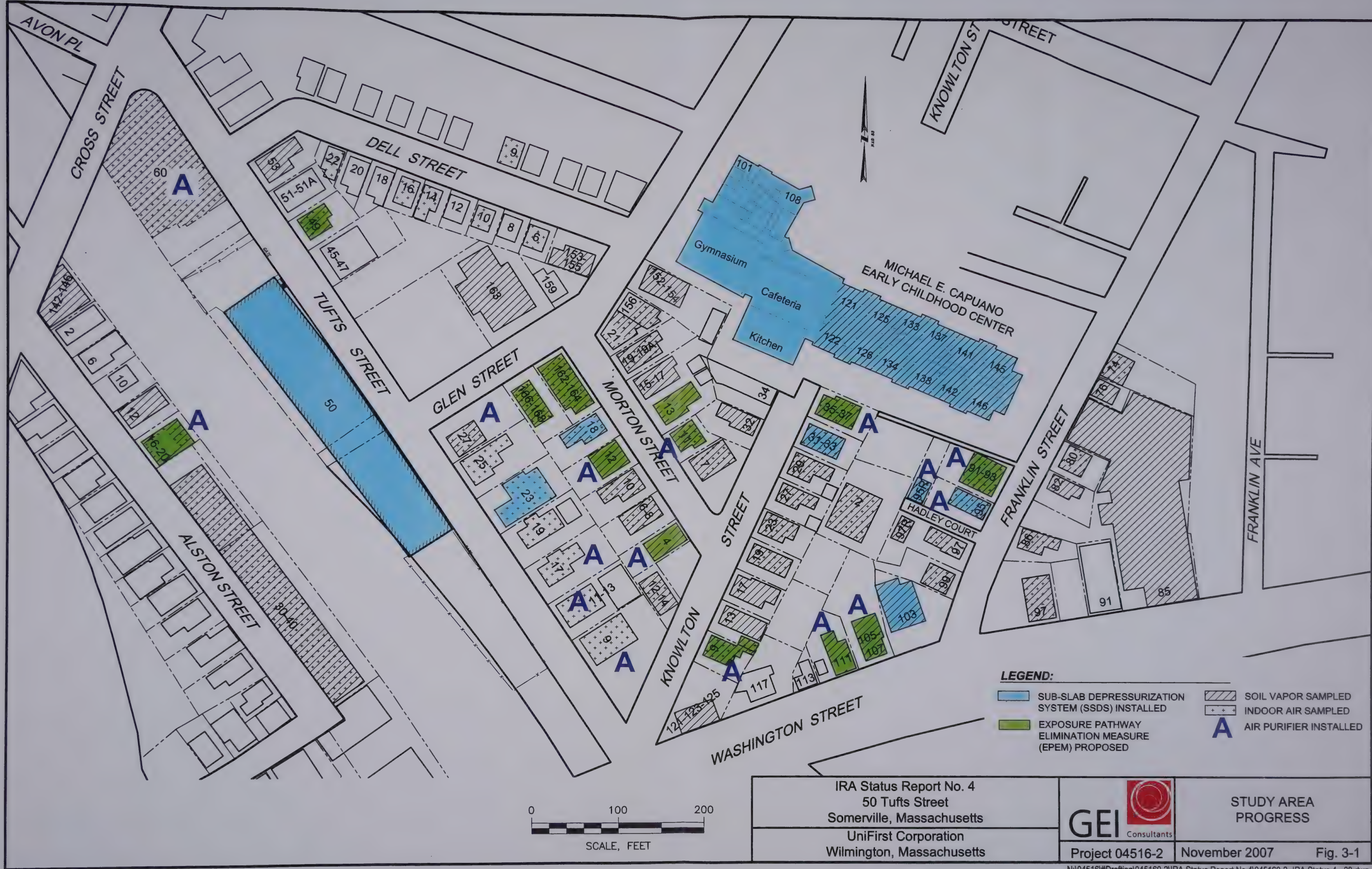
November 2007

Fig. 3-5



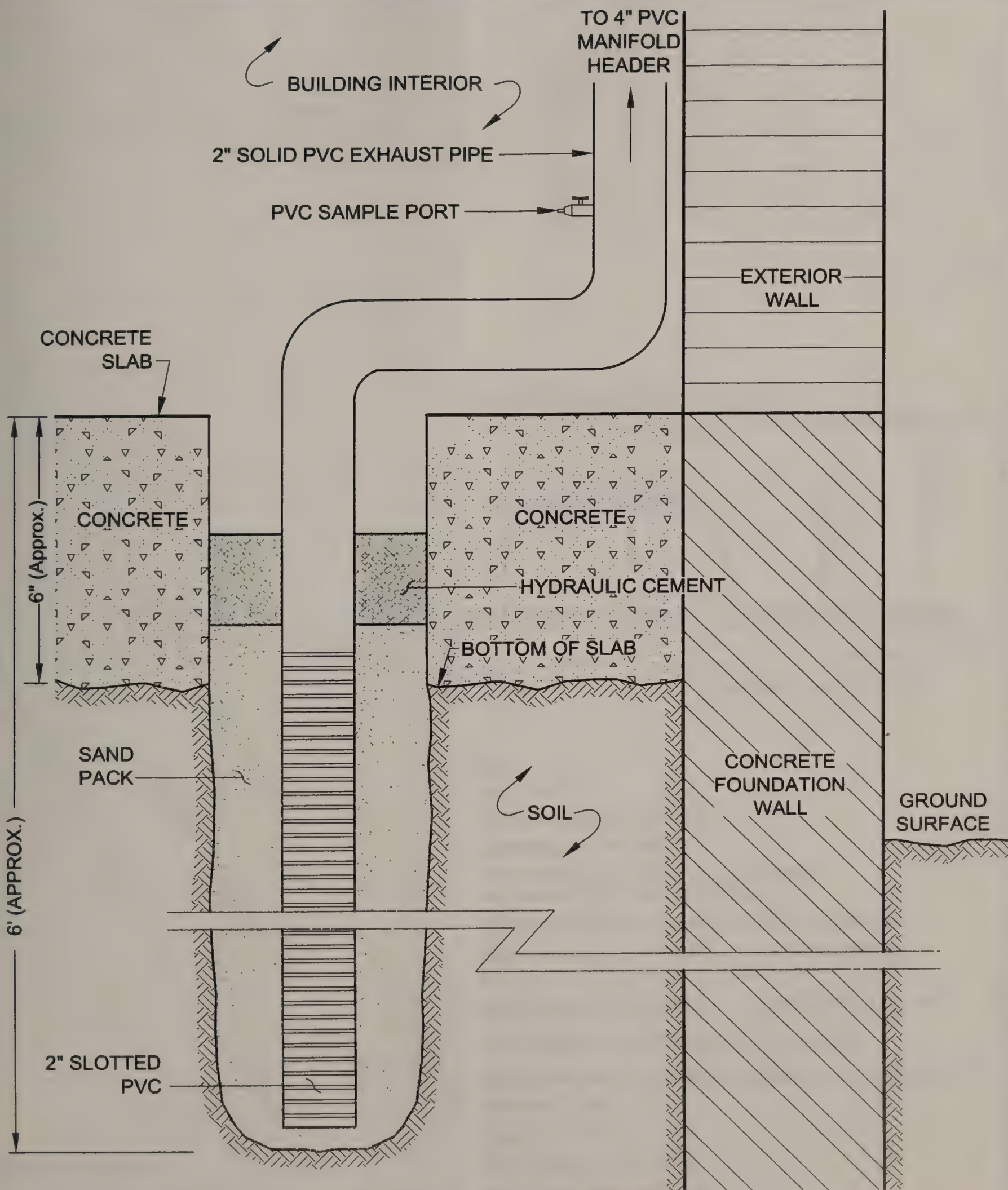












NOT TO SCALE

IRA Status Report No. 4  
50 Tufts Street  
Somerville, Massachusetts

UniFirst Corporation  
Wilmington, Massachusetts



Project 04516-2

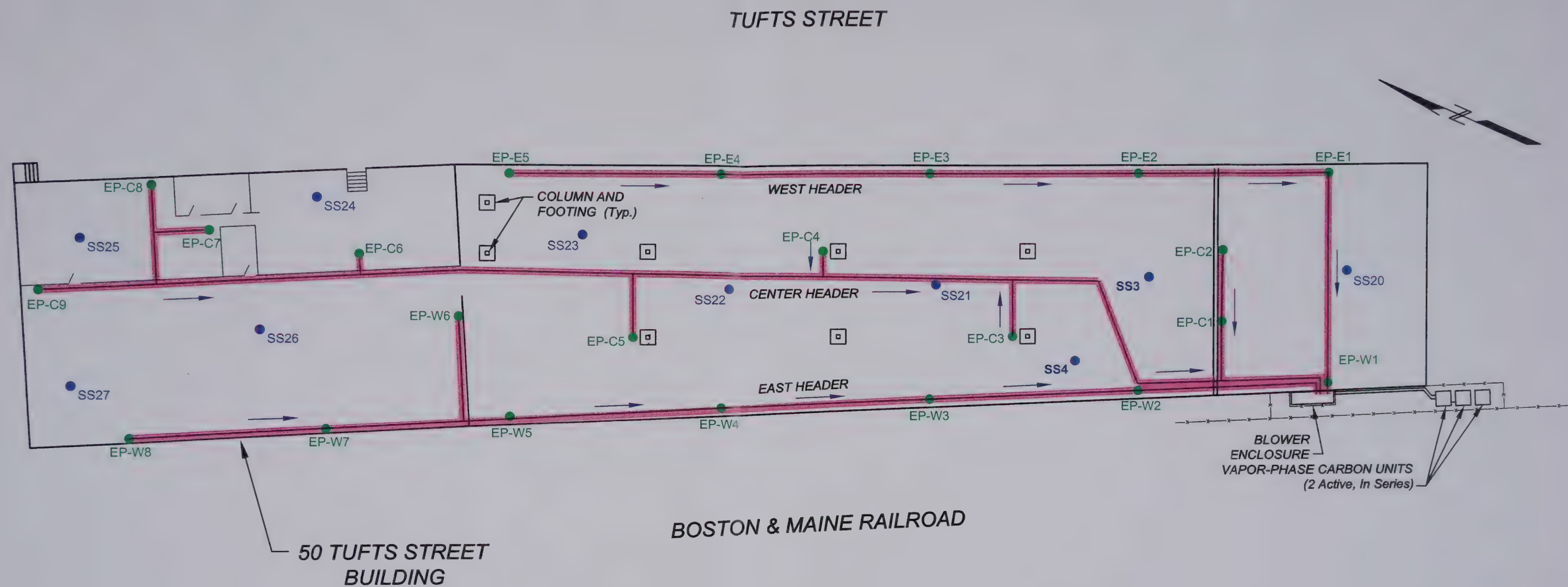
50 TUFTS STREET BUILDING  
SUB-SLAB EXTRACTION  
POINT CROSS SECTION

November 2007

Fig. 4-2





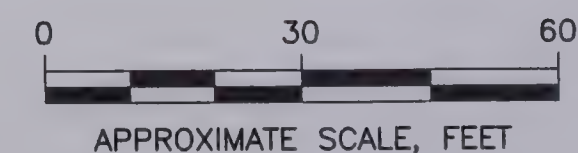



**LEGEND:**

- OVERHEAD 4" PVC PIPE
- ← AIR FLOW IN ACTIVE MODE
- SUB-SLAB EXTRACTION POINT (4" DIA. SCHEDULE 40 PVC)
- SUB-SLAB MONITORING POINT

**NOTES:**

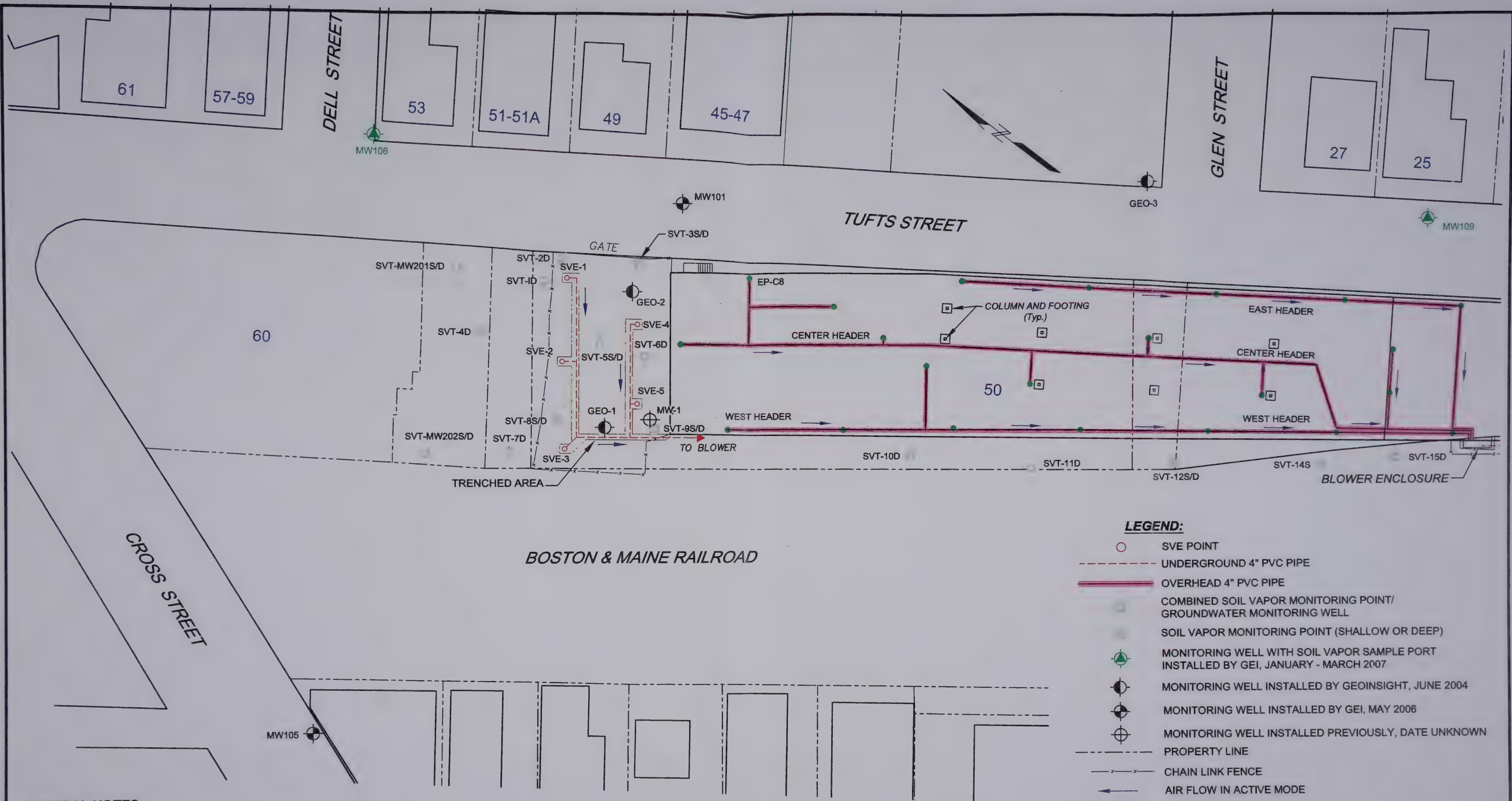
1. FIGURE BASED ON PLAN TITLED "INTERSTATE UNIFORM ADDN., TUFTS STREET SOMERVILLE, MASS." BY STRUCTURAL SYSTEMS, INC. DATED DECEMBER 2, 1976.



IRA Status Report No. 4 50 Tufts Street Somerville, Massachusetts	 <b>GEI</b> Consultants	PIPING AND EQUIPMENT LAYOUT FOR SUB-SLAB DEPRESSURIZATION SYSTEM
UniFirst Corporation Wilmington, Massachusetts		
Project 04516-2	November 2007	Fig. 4-1





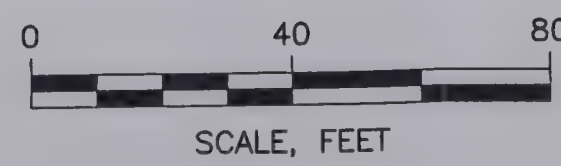


**LEGEND:**

- SVE POINT
- UNDERGROUND 4" PVC PIPE
- OVERHEAD 4" PVC PIPE
- COMBINED SOIL VAPOR MONITORING POINT/  
GROUNDWATER MONITORING WELL
- SOIL VAPOR MONITORING POINT (SHALLOW OR DEEP)
- ⊕ MONITORING WELL WITH SOIL VAPOR SAMPLE PORT  
INSTALLED BY GEI, JANUARY - MARCH 2007
- ⊕ MONITORING WELL INSTALLED BY GEOINSIGHT, JUNE 2004
- ⊕ MONITORING WELL INSTALLED BY GEI, MAY 2006
- ⊕ MONITORING WELL INSTALLED PREVIOUSLY, DATE UNKNOWN
- PROPERTY LINE
- x-x CHAIN LINK FENCE
- AIR FLOW IN ACTIVE MODE
- SUB-SLAB EXTRACTION POINT  
(2" DIA. SCHEDULE 40 PVC)

**GENERAL NOTES:**

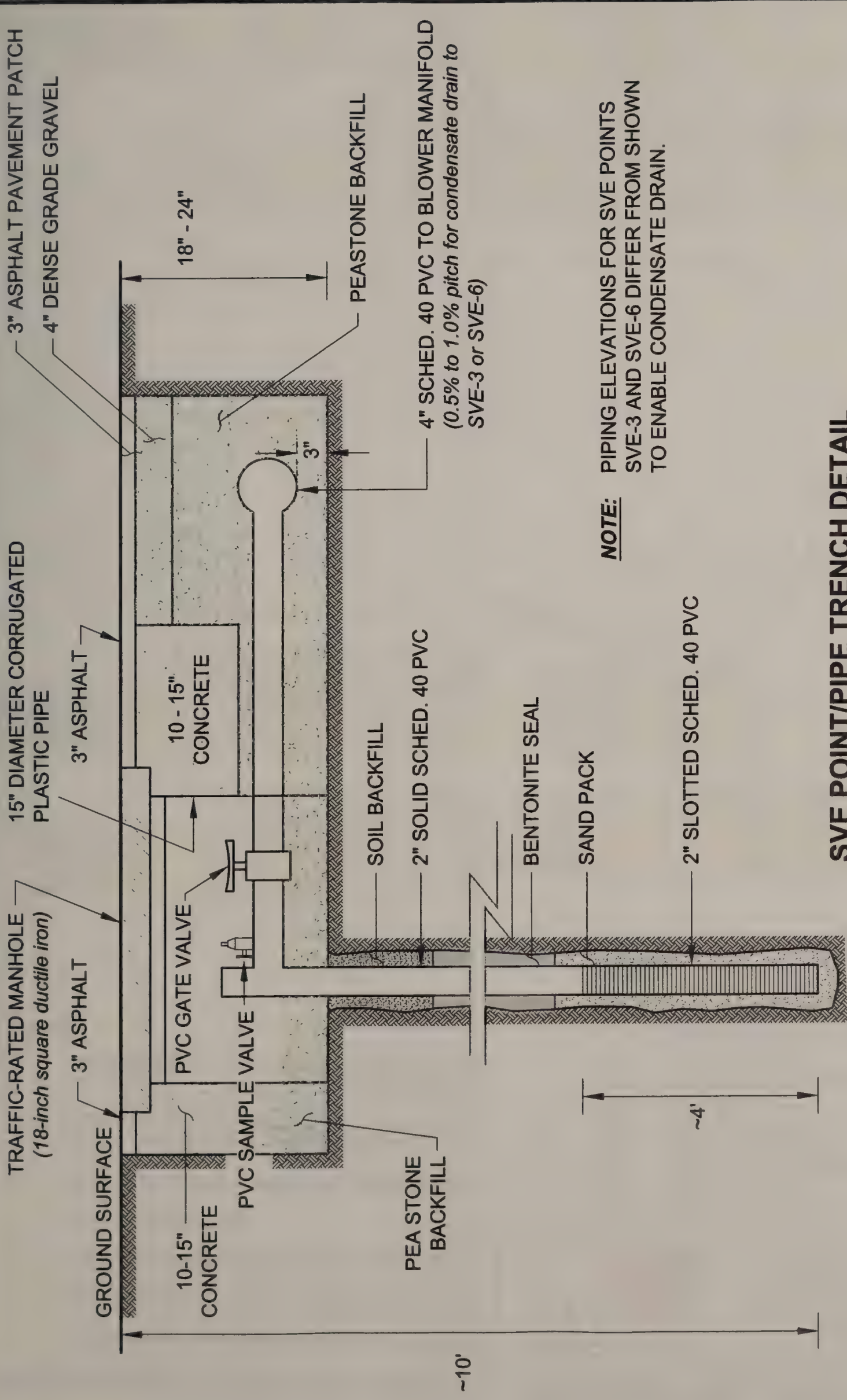
1. HORIZONTAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983.
2. BUILDINGS, STREET, AND PROPERTY LINES BASED ON SOMERVILLE ASSESSORS MAPS AND ARE BEST FIT RELATIVE TO THE LOCATION OF THE 50 TUFTS ST. BUILDING.
3. EXISTING MONITORING WELL LOCATIONS AND ELEVATIONS WERE ESTABLISHED BY AN ON THE GROUND SURVEY BY BSC GROUP, INC. ON MAY 31, 2006 AND MARCH 16-20, 2007.



IRA Status Report No. 4 50 Tufts Street Somerville, Massachusetts		SOIL VAPOR MONITORING and EXTRACTION POINTS (Northern Parking Lot and 60 Tufts Street)
UniFirst Corporation Wilmington, Massachusetts		
Project 04516-2	November 2007	Fig. 4-3a



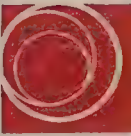




**NOTE:** PIPING ELEVATIONS FOR SVE POINTS SVE-3 AND SVE-6 DIFFER FROM SHOWN TO ENABLE CONDENSATE DRAIN.

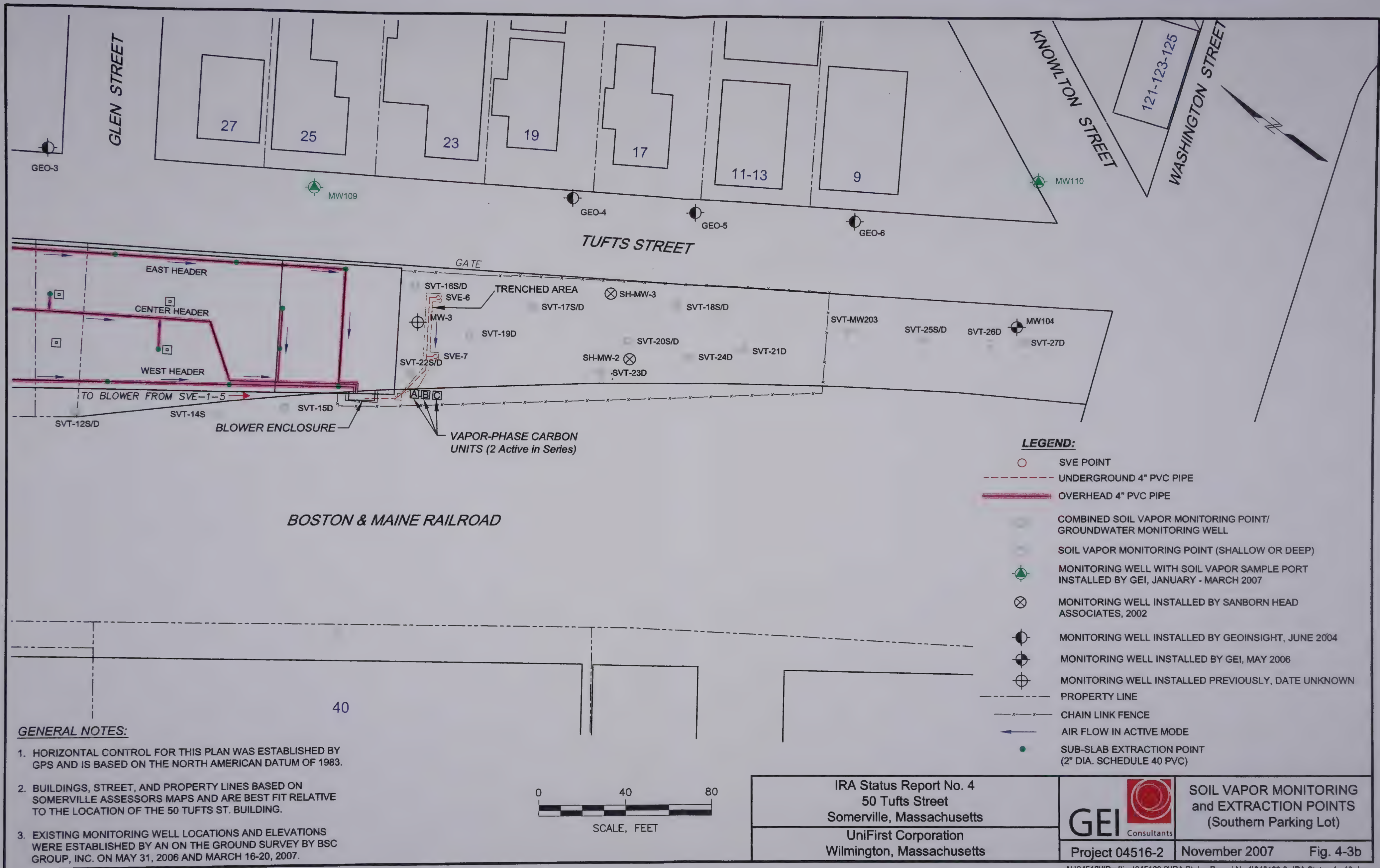
## SVE POINT/PIPE TRENCH DETAIL

Not to Scale

 <p><b>GEI</b> Consultants</p>	<p>IRA Status Report No. 4 50 Tufts Street Somerville, Massachusetts</p>	<p>50 TUFTS STREET PROPERTY SVE SYSTEM CROSS SECTION</p>
<p>Project 04516-2</p>	<p>UniFirst Corporation Wilmington, Massachusetts</p>	<p>November 2007</p>
		<p>Fig. 4-4</p>













	NP							
	5/1/2007		5/14/2007		6/28/2007		8/28/2007	
Carbon tetrachloride	0.75 J	0.12 J	<1.3	<0.20	<1.3	<0.20	0.63 J	0.10 J
Tetrachloroethylene (PCE)	1.8	0.26	7.5	1.1	12 G	1.7 G	14	2.0
1,1,1-Trichloroethane	0.36 J	0.070 J	0.96 J	0.18 J	2.0	0.36	2.0	0.36
Trichloroethylene (TCE)	< 1.1	< 0.20	< 1.1	< 0.20	1.6	0.3	1.6	0.29

	IA (DUPLICATE OF SC)							
	5/1/2007		5/14/2007		6/28/2007		8/28/2007	
Carbon tetrachloride	0.69 J	0.11 J	0.63 J	0.10 J	<1.3	<0.20	0.69 J	0.11 J
Tetrachloroethylene (PCE)	8.1 P	1.2 P	6.8 P	1 P	10 GP	1.5 GP	83	9.3
1,1,1-Trichloroethane	1.2	0.22	<1.1	<0.20	<1.1	<0.20	4.4	0.81
Trichloroethylene (TCE)	1.6	0.29	<1.1	<0.20	<1.1	<0.20	3.6	0.87

	SP							
	5/1/2007		5/14/2007		6/28/2007		8/28/2007	
Carbon tetrachloride	0.69 J	0.11 J	0.63 J	0.10 J	<1.3	<0.20	0.69 J	0.11 J
Tetrachloroethylene (PCE)	3.7	0.54	2.8	0.42	1.8 G	0.26 G	160	23.6
1,1,1-Trichloroethane	< 1.1	< 0.20	<1.1	<0.20	<1.1	<0.20	16	2.9
Trichloroethylene (TCE)	< 1.1	< 0.20	<1.1	<0.20	<1.1	<0.20	12	2.2

	NO							
	5/1/2007		5/14/2007		6/28/2007		8/28/2007	
Carbon tetrachloride	0.69 J	0.11 J	<1.3	<0.20	0.61 J	0.097 J	0.63 J	0.10 J
Tetrachloroethylene (PCE)	34	5.0	6.4	0.94	8.8 G	1.3 G	8.8	1.3
1,1,1-Trichloroethane	3.0	0.55	<1.1	<0.20	0.87 J	0.16 J	0.93 J	0.17 J
Trichloroethylene (TCE)	5.4	1.0	<1.1	<0.20	0.70 J	0.13 J	0.91 J	0.17 J

	GA							
	5/1/2007		5/14/2007		6/28/2007		8/28/2007	
Carbon tetrachloride	0.75 J	0.12 J	<1.3	<0.20	0.69 J	0.11 J	0.69 J	0.11 J
Tetrachloroethylene (PCE)	50	7.3	26	3.9	22 G	3.2 G	79.3	11.7
1,1,1-Trichloroethane	1.5	0.28	<1.1	<0.20	<1.1	<0.20	5.2	0.95
Trichloroethylene (TCE)	2.4	0.44	<1.1	<0.20	<1.1	<0.20	4.4	0.82

	NW							
	5/1/2007		5/14/2007		6/28/2007		8/28/2007	
Carbon tetrachloride	0.75 J	0.12 J	<1.3	<0.20	0.69 J	0.11 J	0.69 J	0.11 J
Tetrachloroethylene (PCE)	33	4.8	11	1.6	15 G	2.2 G	45	6.6
1,1,1-Trichloroethane	2.6	0.48	<1.1	<0.20	0.60 J	0.11 J	4.0	0.73
Trichloroethylene (TCE)	4.1	0.76	<1.1	<0.20	<1.1	<0.20	2.8	0.53

	SO							
	5/1/2007		5/14/2007		6/28/2007		8/28/2007	
Carbon tetrachloride	0.75 J	0.12 J	<1.3	<0.20	<1.3	<0.20	0.61 J	0.097 J
Tetrachloroethylene (PCE)	38	5.6	14	2.0	18 G	2.7 G	15	2.2
1,1,1-Trichloroethane	1.9	0.34	<1.1	<0.20	0.55 J	0.10 J	1.4	0.25
Trichloroethylene (TCE)	3.4	0.64	<1.1	<0.20	0.81 J	0.15 J	1.4	0.26

	NC							
	5/1/2007		5/14/2007		6/28/2007		8/28/2007	
Carbon tetrachloride	0.75 J	0.12 J	<1.3	<0.20	0.60 J	0.096 J	0.59 J	0.083 J
Tetrachloroethylene (PCE)	47	7.0	30	4.4	16 G	2.3 G	69.2	10.2
1,1,1-Trichloroethane	1.4	0.25	<1.1	<0.20	<1.1	<0.20	3.7	0.67
Trichloroethylene (TCE)	2.0	0.37	<1.1	<0.20	<1.1	<0.20	3.4	0.83

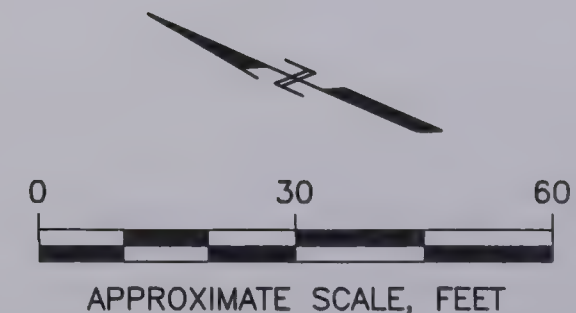
	SC							
	5/1/2007		5/14/2007		6/28/2007		8/28/2007	
Carbon Tetrachloride	< 1.3	< 0.20	< 1.3	< 0.20	0.69 J	0.11 J	0.75 J	0.12 J
Tetrachloroethylene (PCE)	43 P	6.4 P	23 P	3.4 P	18 GP	2.6 GP	66	9.7
1,1,1-Trichloroethane	1.3	0.24	<1.1	<0.20	0.50 J	0.092 J	4.7	0.87
Trichloroethylene (TCE)	2.0	0.37	<1.1	<0.20	<1.1	<0.20	3.8	0.7

	Carbon Influent			
	5/1/2007	5/14/2007	6/28/2007	8/28/2007
1,1 Dichloroethylene	341	66.1	<960	<240
Tetrachloroethylene (PCE)	392000	57800	347000 G	51100 G
1,1,1-Trichloroethane	13700	2510	12800	2340
Trichloroethylene (TCE)	15700	2920	5800	1080

	Carbon Effluent			
	5/1/2007	5/14/2007	6/28/2007	8/28/2007
1,1 Dichloroethylene	<0.79	<0.20	513	131
Tetrachloroethylene (PCE)	<1.4	<0.20	117	17.3
1,1,1-Trichloroethane	<1.1	<0.20	8780	1610
Trichloroethylene (TCE)	<1.1	<0.20	28	5.2

## NOTES:

- FIGURE BASED ON PLAN TITLED "INTERSTATE UNIFORM ADDN., TUFTS STREET SOMERVILLE, MASS." BY STRUCTURAL SYSTEMS, INC. DATED DECEMBER 2, 1976.
- AUGUST 28, 2007 DATA WAS COLLECTED WHILE PCE CONTAMINATED SOIL FROM SVE INSTALLATION WAS STORED ON-SITE IN ROLL-OFF CONTAINERS.
- ONLY DETECTED CHLORINATED VOCs ARE SHOWN HERE.
- "ND" = NOT DETECTED.
- J = THE REPORTED RESULT IS BELOW THE LABORATORY REPORTING LIMITS AND IS ESTIMATED.
- G = THE REPORTED RESULT IS ESTIMATED DUE TO LABORATORY DUPLICATE PRECISION.
- P = THE REPORTED RESULT IS ESTIMATED DUE TO FIELD DUPLICSTE PRECISION OUTSIDE CONTROL LIMITS.



## LEGEND:

- GA INDOOR AIR MONITORING LOCATION (3'-9" ABOVE SLAB)
- GA GARAGE AREA
- NC NORTH CENTRAL WAREHOUSE
- NO NORTH OFFICE
- NP NORTH PARKING LOT
- NW NORTH WAREHOUSE
- SC SOUTH CENTRAL WAREHOUSE
- SO SOUTH OFFICE
- SP SOUTH PARKING LOT

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50 TUFTS STREET  
INDOOR AIR TESTING  
RESULTS

Project 04516-2

November 2007

Fig. 4-5







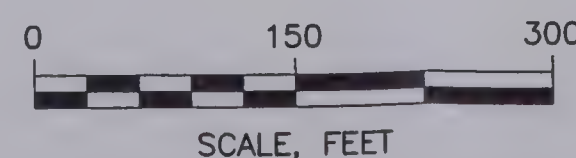


# **LEGEND:**

- MONITORING WELL WITH SOIL VAPOR SAMPLE PORT INSTALLED BY GEI, JANUARY - AUGUST 2007
- MONITORING WELL INSTALLED BY SANBORN HEAD ASSOCIATES, 2002
- MONITORING WELL INSTALLED BY GEOINSIGHT, JUNE 2004
- SOIL BORING ADVANCED BY GEOINSIGHT, AUGUST 2004
- MONITORING WELL INSTALLED BY GEI, MAY 2006 - AUGUST 2007
- MONITORING WELL INSTALLED PREVIOUSLY, DATE UNKNOWN
- APPROXIMATE SURFACE SOIL SAMPLE LOCATION COLLECTED BY GEI, MARCH 2007
- CHAIN LINK FENCE
- 138 ROOM NUMBER AT CAPUANO SCHOOL
- BOUNDARY OF COMMUNITY GARDENS
- 84 STREET ADDRESS

## **GENERAL NOTES:**

1. HORIZONTAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983.
2. STREET AND PROPERTY LINES BASED ON SOMERVILLE ASSESSORS MAPS AND ARE BEST FIT RELATIVE TO THE LOCATION OF THE 50 TUFTS ST. BUILDING.
4. EXISTING MONITORING WELL LOCATIONS AND ELEVATIONS WERE ESTABLISHED BY AN ON THE GROUND SURVEY BY BSC GROUP, INC. IN 2006, AND MARCH, JULY, AND SEPTEMBER 2007.
4. CAPUANO CENTER COMMUNITY GARDEN LOCATIONS WERE ESTABLISHED BY AN ON THE GROUND SURVEY BY BSC GROUP, INC. IN JULY 2007.
5. GEI OBSERVED GEOSearch DRILLING ABANDON SH-MW1 ON AUGUST 9, 2007.



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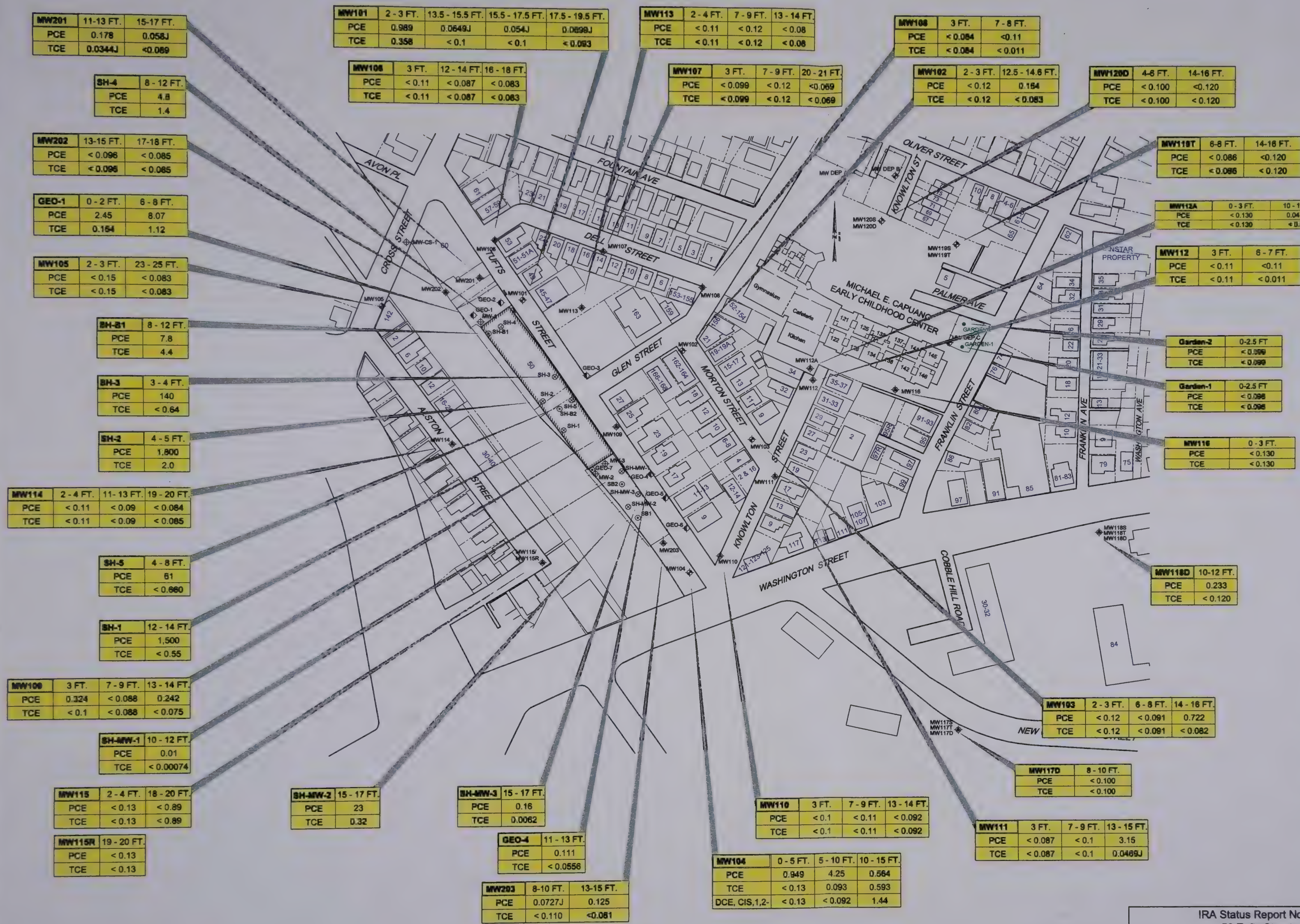
MONITORING WELL AND  
BORING LOCATIONS

Project 04516-2 November 2007 Fig. 5-1





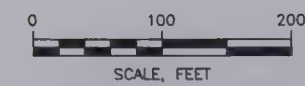




- LEGEND:**
- MONITORING WELL WITH SOIL GAS SAMPLE PORT INSTALLED BY GEI, JANUARY - AUGUST 2007
  - MONITORING WELL INSTALLED BY SANBORN HEAD ASSOCIATES, 2002
  - MONITORING WELL INSTALLED BY GEOINSIGHT, JUNE 2004
  - SOIL BORING ADVANCED BY GEOINSIGHT, AUGUST 2004
  - MONITORING WELL INSTALLED BY GEI, MAY 2006 - AUGUST 2007
  - MONITORING WELL INSTALLED PREVIOUSLY, DATE UNKNOWN
  - CHAIN LINK FENCE
  - 138 ROOM NUMBER AT CAPUANO SCHOOL
  - 84 STREET ADDRESS

- CHEMICAL DATA TABLE NOTES**
- CONCENTRATIONS ARE REPORTED IN MILLIGRAMS PER KILOGRAM.
  - CONCENTRATIONS OF PCE AND TCE ARE SHOWN FOR EACH LOCATION. CONCENTRATIONS OF RELATED CHLORINATED COMPOUNDS ARE SHOWN WHERE DETECTED.
  - MCP = MASSACHUSETTS CONTINGENCY PLAN 310 CMR 40.0000 WITH REVISIONS EFFECTIVE APRIL 3, 2006.
  - PCE = TETRACHLOROETHYLENE
  - TCE = TRICHLOROETHYLENE
  - DCE,CIS,1,2 = CIS,1,2-DICHLOROETHENE
  - J = THE REPORTED RESULT IS BELOW THE LABORATORY TESTING LIMIT AND IS ESTIMATED.

- GENERAL NOTES**
- HORIZONTAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983.
  - STREET AND PROPERTY LINES BASED ON SOMERVILLE ASSESSORS MAPS AND ARE BEST FIT RELATIVE TO THE LOCATION OF THE 50 TUFTS ST. BUILDING.
  - CAPUANO CENTER BUILDING IS BASED ON DRAWING A0.2 FROM THE ARCHITECTURAL BID SET OF "THE EDGERTY EARLY CHILDHOOD DEVELOPMENT CENTER" BY HMFH ARCHITECTS, INC., DATED AUGUST 10, 2001.
  - MONITORING WELL LOCATIONS AND ELEVATIONS WERE ESTABLISHED BY AN ON THE GROUND SURVEY BY BSC GROUP, INC. IN MAY 2006, MARCH, JULY, AND SEPTEMBER 2007.
  - MONITORING WELL LOCATIONS FOR MW119S/T AND MW120S/D ARE APPROXIMATE.
  - REFER TO THE TEXT OF THIS REPORT FOR SAMPLING DATES.









	MW107					
	1/17/2007		4/10/2007		7/17/2007	
	ug/m3	ppbV	ug/m3	ppbV	ug/m3	ppbV
Chloroethane	5.5	2.1	7.9	3	0.71	0.27
Carbon tetrachloride	0.94 J	0.15 J	< 1.3	< 0.20	0.94 J	0.15 J
Dichloroethane, 1,1-	57.5	24.1	123	30.3	12	2.9
Dichloroethane, 1,1-	70.6	17.8	107	27.1	5.2	1.3
Dichloroethane, cis, 1,2-	<0.79	<0.20	0.63 J	0.16 J	< 0.79	< 0.20
Tetrachloroethylene (PCE)	0.95 J	0.14 J	4.2	0.62	15	2.2
Trichloroethane, 1,1,1-	4.0	0.74	4.4	0.81	4.1	0.76
Trichloroethylene (TCE)	5.9	1.1	4.1	0.75	17	3.2
Vinyl Chloride	4.1	1.6	5.9	2.3	< 0.51	< 0.20

	MW108					
	1/17/2007		4/10/2007		4/10/2007	
	ug/m3	ppbV	ug/m3	ppbV	ug/m3	ppbV
Carbon tetrachloride	0.62 J	0.098 J	< 1.3	< 0.20	< 1.3	< 0.20
Tetrachloroethylene (PCE)	34.9	14	75.9	11.2	90.9	13.4

	MW1203	
	8/28/2007	
	ug/m3	ppbV
Chloroethane	0.58	0.22
Carbon Tetrachloride	0.62 J	0.098 J
Dichloroethane, 1,1-	51.8	12.8
Dichloroethane, 1,1-	1.1	0.29
Dichloroethylene, trans, 1,2-	0.81	0.20
Tetrachloroethylene (PCE)	18	2.7
Trichloroethane, 1,1,1-	0.55 J	0.10 J
Trichloroethylene (TCE)	4.8	0.90
Vinyl Chloride	0.51	0.20

	MW1195	
	8/28/2007	
	ug/m3	ppbV
Chloroethane	1.6	0.62
Dichloroethane, 1,2-	0.85	0.21
Tetrachloroethylene (PCE)	12	1.7
Trichloroethylene (TCE)	1.2	0.23
Vinyl Chloride	1.2	0.47

	MW1124					
	3/20/2007		4/11/2007		7/17/2007	
	ug/m3	ppbV	ug/m3	ppbV	ug/m3	ppbV
Dichloroethane, 1,1-	429	106	155	38.2	359	88.8
Dichloroethylene, 1,1-	821	207	318	80.3	777	196
Tetrachloroethylene (PCE)	6230	819	8240	920	8140	1200
Trichloroethane, 1,1,1-	85.1	15.8	66.0 J	12.1 J	139	25.5
Trichloroethylene (TCE)	951	177	505	93.9	2030	377

	MW112	
	1/17/2007	
	ug/m3	ppbV
Carbon tetrachloride	0.69 J	0.11 J
Tetrachloroethylene (PCE)	2.8	0.41

	MW118					
	3/20/2007		4/11/2007		7/17/2007	
	ug/m3	ppbV	ug/m3	ppbV	ug/m3	ppbV
Chloroethane	< 26	< 10	< 53	< 20	28	10.8
Dichloroethane, 1,1-	378	93.5	923	228	1490	367
Dichloroethylene, 1,1-	576	221	1570	395	634	160
Dichloroethane, 1,2-	< 40	< 10	< 79	< 20	5.7 J	1.4 J
Dichloroethylene, trans, 1,2-	< 40	< 10	< 79	< 20	151	38.1
Dichloroethylene, cis, 1,2-	254	64	2620	661	1740	438
Tetrachloroethylene (PCE)	11100	1630	21500 G	3170 G	25500	3760
Trichloroethane, 1,1,1-	192	35.2	492	90.2	1020	187
Trichloroethylene (TCE)	2140	308	8400	1190	2620	488
Vinyl Chloride	89	34.8	514	201	64.7	25.3

	MW106					
	1/18/2007		1/18/2007 (FD)		4/10/2007	
	ug/m3	ppbV	ug/m3	ppbV	ug/m3	ppbV
Dichloroethane, 1,1-	12	3.0	3.7	0.92	2.6	0.64
Dichloroethylene, 1,1-	204	51.5	58.7	14.8	20	5.1
Tetrachloroethylene (PCE)	47	5.9	16	2.4	14	2.1
Trichloroethane, 1,1,1-	520	95.3	170	31.2	70	20.9
Trichloroethylene (TCE)	69.9	13	22	4.1	18	3.3

	MW113			
	2/19/2007		4/10/2007	
	ug/m3	ppbV	ug/m3	ppbV
Dichloroethane, 1,1-	8.1	2.0	0.57 J	0.14 J
Dichloroethylene, 1,1-	21	5.2	< 0.79	< 0.20
Tetrachloroethylene (PCE)	8.8 J	1.3 J	3.7	0.55
Trichloroethane, 1,1,1-	11	2.0	< 1.1	< 0.20
Trichloroethylene (TCE)	16	3.0	< 1.1	< 0.20

	MW114					
	2/19/2007		4/10/2007		7/17/2007	
	ug/m3	ppbV	ug/m3	ppbV	ug/m3	ppbV
Chloroethane	< 5.3	< 2.0	0.77	0.29	< 0.53	< 0.20
Carbon Tetrachloride	< 31	< 5.0	< 1.3	< 0.20	0.69 J	0.11 J
Tetrachloroethylene (PCE)	< 14	< 2.0	12	1.7	17	2.5
Trichloroethane, 1,1,1-	< 11	< 2.0	< 1.1	< 0.20	0.76 J	0.14 J
Trichloroethylene (TCE)	4.0	0.75	0.86 J	0.16 J	1.5	0.27
Vinyl Chloride	< 5.1	< 2.0	0.36 J	0.14 J	< 0.51	< 0.20

	MW109			
	1/17/2007		4/10/2007	
	ug/m3	ppbV	ug/m3	ppbV
Tetrachloroethylene (PCE)	9020	1330	3950	582
Trichloroethane, 1,1,1-	573	105	322	59.1
Trichloroethylene (TCE)	< 110	< 20	31 J	5.7 J

	MW115R					
	3/20/2007		4/10/2007		7/17/2007	
	ug/m3	ppbV	ug/m3	ppbV	ug/m3	ppbV
Dichloroethane, 1,1-	0.65 J	0.16 J	< 0.81	< 0.20	< 0.81	< 0.20
Dichloroethylene, 1,1-	1.3	0.33	< 0.79	< 0.20	< 0.79	< 0.20
Tetrachloroethylene (PCE)	12	1.8	< 1.4	< 0.20	71.2	10.5
Trichloroethylene (TCE)	< 1.1	< 0.20	< 1.1	< 0.20	0.75 J	0.14 J

	MW115	
	2/19/2007	
	ug/m3	ppbV
Tetrachloroethylene (PCE)	42	6.2
Trichloroethylene (TCE)	15	2.7

	MW111					
	1/17/2007		4/11/2007		7/17/2007	
	ug/m3	ppbV	ug/m3	ppbV	ug/m3	ppbV
Dichloroethane, 1,1-	943	233	67.2 J	16.6 J	< 810	< 200
Dichloroethylene, 1,1-	619 J	156 J	< 79	< 20	< 790	< 200
Dichloroethylene, cis, 1,2-	< 790	< 200	46.4 J	11.7 J	< 790	< 200
Tetrachloroethylene (PCE)	269000	39700	52600	7760	178000 G	26200 G
Trichloroethane, 1,1,1-	4850	853	715	131	2770	507
Trichloroethylene (TCE)	2600	484	486	86.7	1520	282

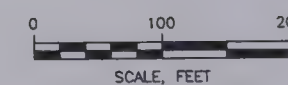
	MW117S	
	7/17/2007	
	ug/m3	ppbV
Dichloroethane, 1,1-	4.5	1.1
Tetrachloroethylene (PCE)	12	1.7
Trichloroethane, 1,1,1-	1.4	0.26
Trichloroethylene (TCE)	4.2	0.78

	MW118S			
	7/17/2007		8/31/2007	
	ug/m3	ppbV	ug/m3	ppbV
Carbon Tetrachloride	4.8	0.77	2.2	0.39
Tetrachloroethylene (PCE)	231	34.1	155	22.9
Trichloroethane, 1,1,1-	8.2	1.5	6.0	1.1
Trichloroethylene (TCE)	2.1	0.39	< 1.1	< 0.20

- LEGEND:**
- MONITORING WELL WITH SOIL GAS SAMPLE PORT INSTALLED BY GEI, JANUARY - AUGUST 2007
  - MONITORING WELL INSTALLED BY SANBORN HEAD ASSOCIATES, 2002
  - MONITORING WELL INSTALLED BY GEOSIGHT, JUNE 2004
  - SOIL BORING ADVANCED BY GEOSIGHT, AUGUST 2004
  - MONITORING WELL INSTALLED BY GEI, MAY 2006 - AUGUST 2007
  - MONITORING WELL INSTALLED PREVIOUSLY, DATE UNKNOWN
  - CHAIN LINK FENCE
  - 136 ROOM NUMBER AT CAPUANO SCHOOL
  - 84 STREET ADDRESS

- CHEMICAL DATA TABLE NOTES:**
- ONLY DETECTED CHLORINATED VOCs ARE SHOWN HERE.
  - "ND" = NOT DETECTED.
  - J = THE REPORTED RESULT IS BELOW THE LABORATORY REPORTING LIMITS IS ESTIMATED.
  - G = THE RESULT IS ESTIMATED DUE TO DUPLICATE PRECISION OUTSIDE THE CONTROL LIMITS.
  - < = ANALYTE WAS NOT DETECTED AT A CONCENTRATION ABOVE THE SPECIFIED LIMIT.

- GENERAL NOTES:**
- HORIZONTAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983.
  - BUILDINGS, STREET AND PROPERTY LINES BASED ON SOMERVILLE ASSESSORS MAPS AND ARE BEST FIT RELATIVE TO THE LOCATION OF THE 50 TUFTS ST. BUILDING.
  - CAPUANO CENTER BUILDING IS BASED ON DRAWING A0.2 FROM THE ARCHITECTURAL BID SET OF THE EDGERTY EARLY CHILDHOOD DEVELOPMENT CENTER BY HMPH ARCHITECTS, INC., DATED AUGUST 10, 2001.
  - EXISTING MONITORING WELL LOCATIONS AND ELEVATIONS WERE ESTABLISHED BY AN ON THE GROUND SURVEY BY BSC GROUP, INC. IN MAY 2006, AND MARCH, JULY, AND SEPTEMBER 2007.
  - REFER TO THE TEXT OF THIS REPORT FOR SAMPLING DATES.

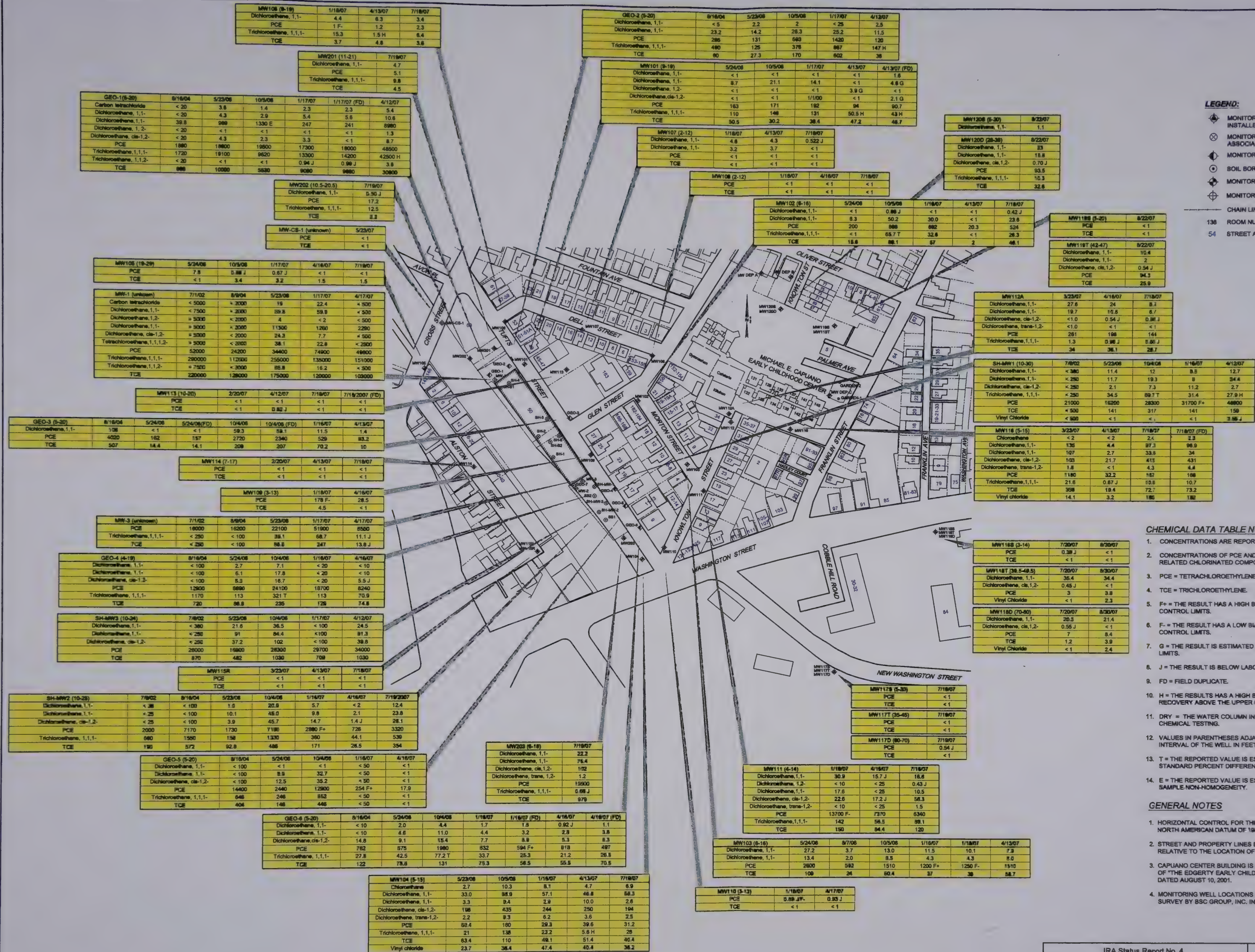


IRA Status Report No. 4  
50 Tufts Street  
Somerville, Massachusetts  
UniFirst Corporation  
Wilmington, Massachusetts













**LEGEND:**

- 100 MHz GPR TRANSECT
- 40 MHz GPR TRANSECT
- } SEISMIC TRANSECT
- }
- APPROXIMATE LOCATIONS OF BEDROCK OUTCROPS

**GENERAL NOTES:**

1. BASE PLAN AND TRANSECT LOCATIONS PROVIDED BY HAGER GEOSCIENCE, INC., JULY 2007.
2. TRANSECTS WERE ESTABLISHED BY HAGER GEOSCIENCE, INC. AS PART OF A BEDROCK GEOPHYSICAL SURVEY CONDUCTED ON APRIL 18, 2007, JUNE 11 AND 12, 2007.
3. BEDROCK OUTCROP LOCATIONS FROM HAGER GEOSCIENCE, INC. FIELD RECONNAISSANCE.

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50 Tufts Street  
Somerville, Massachusetts  
UniFirst Corporation  
Wilmington, Massachusetts



GEOPHYSICAL SURVEY PLAN

Project 04516-2

November 2007

Fig. 5-5

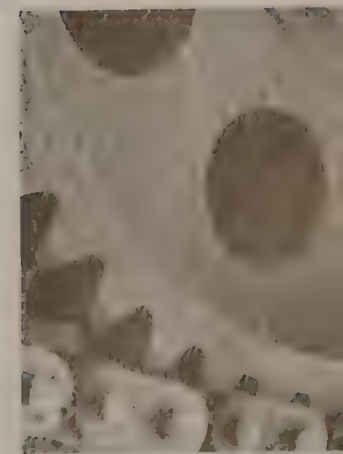
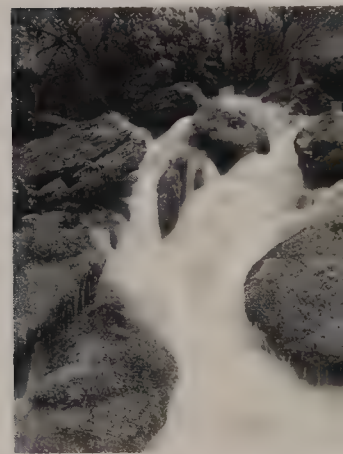
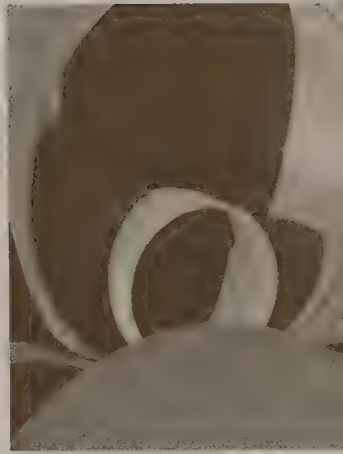








Geotechnical  
Environmental and  
Water Resources  
Engineering





## Appendix A

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### IRA Transmittal Form (BWSC105)







Massachusetts Department of Environmental Protection

## **eDEP Transaction Copy**

---

Here is the file you requested for your records.

To retain a copy of this file you must save and/or print.

Username: **IGLADSTONE**

Transaction ID: **155462**

Document: **BWSC 105 IRA**

Size of File: **140.794 K**

Status of Transaction: **SUBMITTED**

Date and Time Created: **11/9/2007::1:29:47 PM**

**Note:** This file only includes forms that were part of your transaction as of the date and time indicated above. If you need a more current copy of your transaction, return to eDEP and select to "Download a Copy" from the Current Submittals page.





Massachusetts Department of Environmental Protection  
Bureau of Waste Site Cleanup

BWSC105

**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL  
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3

-

23246

**A. RELEASE OR THREAT OF RELEASE LOCATION:**

1. Release Name/Location Aid: **50 TUFTS ST & PROP ACROSS THE ST**
2. Street Address: **50 TUFTS ST**
3. City/Town: **SOMERVILLE** 4. ZIP Code: **02145-4129**
5. UTM Coordinates: a. UTM N: **4694322** b. UTM E: **328049**
- ☒ 6. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site.  
☐ a. Tier IA ☐ b. Tier IB ☒ c. Tier IC ☐ d. Tier II
- ☐ 7. Check here if this location is Adequately Regulated, pursuant to 310 CMR 40.0110-0114. Specify Program (check one):  
☐ a. CERCLA ☐ b. HSWA Corrective Action ☐ c. Solid Waste Management  
☐ d. RCRA State Program (21C Facilities)

**B. THIS FORM IS BEING USED TO:** (check all that apply)

1. List Submittal Date of Initial IRA Written Plan (if previously submitted): **1/9/2006**  
(mm/dd/yyyy)
- ☐ 2. Submit an **Initial IRA Plan**.
- ☐ 3. Submit a **Modified IRA Plan** of a previously submitted written IRA Plan.
- ☐ 4. Submit an **Imminent Hazard Evaluation**. (check one)  
☐ a. An Imminent Hazard exists in connection with this Release or Threat of Release.  
☐ b. An Imminent Hazard does not exist in connection with this Release or Threat of Release.  
☐ c. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release, and further assessment activities will be undertaken.  
☐ d. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release. However, response actions will address those conditions that could pose an Imminent Hazard.
- ☐ 5. Submit a request to **Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard**.
- ☒ 6. Submit an **IRA Status Report**.
- ☐ 7. Submit a **Remedial Monitoring Report**. (This report can only be submitted through eDEP.)  
a. Type of Report: (check one) ☐ i. Initial Report ☐ ii. Interim Report ☐ iii. Final Report  
b. Frequency of Submittal: (check all that apply)  
☐ i. A Remedial Monitoring Report(s) submitted monthly to address an Imminent Hazard.  
☐ ii. A Remedial Monitoring Report(s) submitted monthly to address a Condition of Substantial Release Migration.  
☐ iii. A Remedial Monitoring Report(s) submitted concurrent with a IRA Status Report.  
c. Number of Remedial Systems and/or Monitoring Programs: \_\_\_\_\_
- A separate BWSC105A, IRA Remedial Monitoring Report, must be filled out for each Remedial System and/or Monitoring Program addressed by this transmittal form.









Massachusetts Department of Environmental Protection  
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B. THIS FORM IS BEING USED TO (cont.): (check all that apply)

☐ 8. Submit an IRA Completion Statement.

☐ a. Check here if future response actions addressing this Release or Threat of Release notification condition will be conducted as part of the Response Actions planned or ongoing at a Site that has already been Tier Classified under a different Release Tracking Number (RTN). When linking RTNs, rescoring via the NRS is required if there is a reasonable likelihood that the addition of the new RTN(s) would change the classification of the site.

b. Provide Release Tracking Number of Tier Classified Site (Primary RTN):

-

These additional response actions must occur according to the deadlines applicable to the Primary RTN. Use the Primary RTN when making all future submittals for the site unless specifically relating to this Immediate Response Action.

☐ 9. Submit a Revised IRA Completion Statement.

(All sections of this transmittal form must be filled out unless otherwise noted above)

C. RELEASE OR THREAT OF RELEASE CONDITIONS THAT WARRANT IRA:

1. Identify Media Impacted and Receptors Affected: (check all that apply)

- ☒ a. Air ☒ b. Basement ☒ c. Critical Exposure Pathway ☒ d. Groundwater ☒ e. Residence  
☐ f. Paved Surface ☐ g. Private Well ☐ h. Public Water Supply ☒ i. School ☐ j. Sediments  
☐ k. Soil ☐ l. Storm Drain ☐ m. Surface Water ☐ n. Unknown ☐ o. Wetland ☐ p. Zone 2  
☐ q. Others Specify: \_\_\_\_\_

2. Identify Oils and Hazardous Materials Released: (check all that apply)

- ☐ a. Oils ☒ b. Chlorinated Solvents ☐ c. Heavy Metals  
☐ d. Others Specify: \_\_\_\_\_

D. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply, for volumes list cumulative amounts)

- |  |   |
|--|---|
| <input type="checkbox"/> 1. Assessment and/or Monitoring Only                | <input type="checkbox"/> 2. Temporary Covers or Caps                        |
| <input type="checkbox"/> 3. Deployment of Absorbent or Containment Materials | <input type="checkbox"/> 4. Temporary Water Supplies                        |
| <input type="checkbox"/> 5. Structure Venting System                         | <input type="checkbox"/> 6. Temporary Evacuation or Relocation of Residents |
| <input type="checkbox"/> 7. Product or NAPL Recovery                         | <input type="checkbox"/> 8. Fencing and Sign Posting                        |
| <input type="checkbox"/> 9. Groundwater Treatment Systems                    | <input checked="" type="checkbox"/> 10. Soil Vapor Extraction               |
| <input type="checkbox"/> 11. Bioremediation                                  | <input type="checkbox"/> 12. Air Sparging                                   |







Massachusetts Department of Environmental Protection  
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IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL  
FORM Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

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D. DESCRIPTION OF RESPONSE ACTIONS (cont.): (check all that apply, for volumes list cumulative amounts)

☒ 13. Excavation of Contaminated Soils

☒ a. Re-use, Recycling or Treatment

☐ i. On Site Estimated volume in cubic yards \_\_\_\_\_

☒ ii. Off Site Estimated volume in cubic yards 61

ii.a. Receiving Facility: STABLEX; QUEBEC CANADA Town: BOSTON State: MA

ii.b. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

iii. Describe: \_\_\_\_\_

☐ b. Store

☐ i. On Site Estimated volume in cubic yards \_\_\_\_\_

☐ ii. Off Site Estimated volume in cubic yards \_\_\_\_\_

ii.a. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

ii.b. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

☐ c. Landfill

☐ i. Cover Estimated volume in cubic yards \_\_\_\_\_

Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

☐ ii. Disposal Estimated volume in cubic yards \_\_\_\_\_

Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

☐ 14. Removal of Drums, Tanks or Containers:

a. Describe Quantity and Amount: \_\_\_\_\_

b. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

c. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

☒ 15. Removal of Other Contaminated Media:

a. Specify Type and Volume: SPENT GRANULAR ACTIVATED CARBON  
8,000 LBS.

b. Receiving Facility: RINECO Town: BENTON State: AR

c. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

☒ 16. Other Response Actions:

Describe: \_\_\_\_\_

TEMPORARY AIR PURIFIERS AND/OR SUB-SLAB DEPRESSURIZATION SYSTEMS

☐ 17. Use of Innovative Technologies:

Describe: \_\_\_\_\_







Massachusetts Department of Environmental Protection  
Bureau of Waste Site Cleanup

BWSC105

**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL  
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3

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23246

**E. LSP SIGNATURE AND STAMP:**

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B of this form indicates that an **Immediate Response Action Plan** is being submitted, the response action(s) that is(are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is(are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Imminent Hazard Evaluation** is being submitted, this Imminent Hazard Evaluation was developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and the assessment activity(ies) undertaken to support this Imminent Hazard Evaluation comply(ies) with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000;

> if Section B of this form indicates that an **Immediate Response Action Status Report** and/or a **Remedial Monitoring Report** is(are) being submitted, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Immediate Response Action Completion Statement** or a request to **Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard** is being submitted, the response action(s) that is(are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is(are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 9719

2. First Name: ILEEN S

3. Last Name: GLADSTONE

4. Telephone: 7817214012

5. Ext.:

6. FAX:

7. Signature: ILEEN S GLADSTONE

8. Date: 11/09/2007

(mm/dd/yyyy)

9. LSP Stamp:









Massachusetts Department of Environmental Protection  
Bureau of Waste Site Cleanup

BWSC105

IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL  
FORM Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3

-

23246

F. PERSON UNDERTAKING IRA:

1. Check all that apply: ☐ a. change in contact name ☐ b. change of address ☐ c. change in the person undertaking response actions
2. Name of Organization: **UNIFIRST CORP**
3. Contact First Name: **JOHN R** 4. Last Name: **BADEY**
5. Street: **68 JONSPIN RD** 6. Title:
7. City/Town: **WILMINGTON** 8. State: **MA** 9. ZIP Code: **01887-0000**
10. Telephone: **8003477888** 11. Ext.:  12. FAX:

G. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON UNDERTAKING IRA:

- ☒ 1. RP or PRP ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter
- ☒ e. Other RP or PRP Specify: **OTHER PRPS**
- ☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)
- ☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))
- ☐ 4. Any Other Person Undertaking IRA Specify Relationship:

H. REQUIRED ATTACHMENT AND SUBMITTALS:

- ☐ 1. Check here if any Remediation Waste, generated as a result of this IRA, will be stored, treated, managed, recycled or reused at the site following submission of the IRA Completion Statement. If this box is checked, you must submit one of the following plans, along with the appropriate transmittal form.
- ☐ a. A Release Abatement Measure (RAM) Plan (BWSC106) ☐ b. Phase IV Remedy Implementation Plan (BWSC108)
- ☐ 2. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.
- ☒ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health were notified of the implementation of an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.
- ☐ 4. Check here to certify that the Chief Municipal Officer and the Local Board of Health were notified of the submittal of a Completion Statement for an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.
- ☐ 5. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to the DEP Regional Office.
- ☒ 6. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.







**Massachusetts Department of Environmental Protection**  
*Bureau of Waste Site Cleanup*

**BWSC105**

**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL  
FORM**

Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

**3**

-

**23246**

**I. CERTIFICATION OF PERSON UNDERTAKING IRA:**

1. I, **JOHN R. BADEY**, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: **JOHN R. BADEY**

Signature

3. Title:

4. For: **UNIFIRST CORP**

(Name of person or entity recorded in Section F)

5. Date: **11/09/2007**

(mm/dd/yyyy)

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section F.

7. Street: \_\_\_\_\_

8. City/Town: \_\_\_\_\_ 9. State: \_\_\_\_\_ 10. ZIP Code: \_\_\_\_\_

11. Telephone: \_\_\_\_\_ 12. Ext.: \_\_\_\_\_ 13. FAX: \_\_\_\_\_

**YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.**

Date Stamp (DEP USE ONLY:)

**Received by DEP on**

**11/9/2007 9:31:07 AM**









## **Appendices (found on the enclosed two CDs)**

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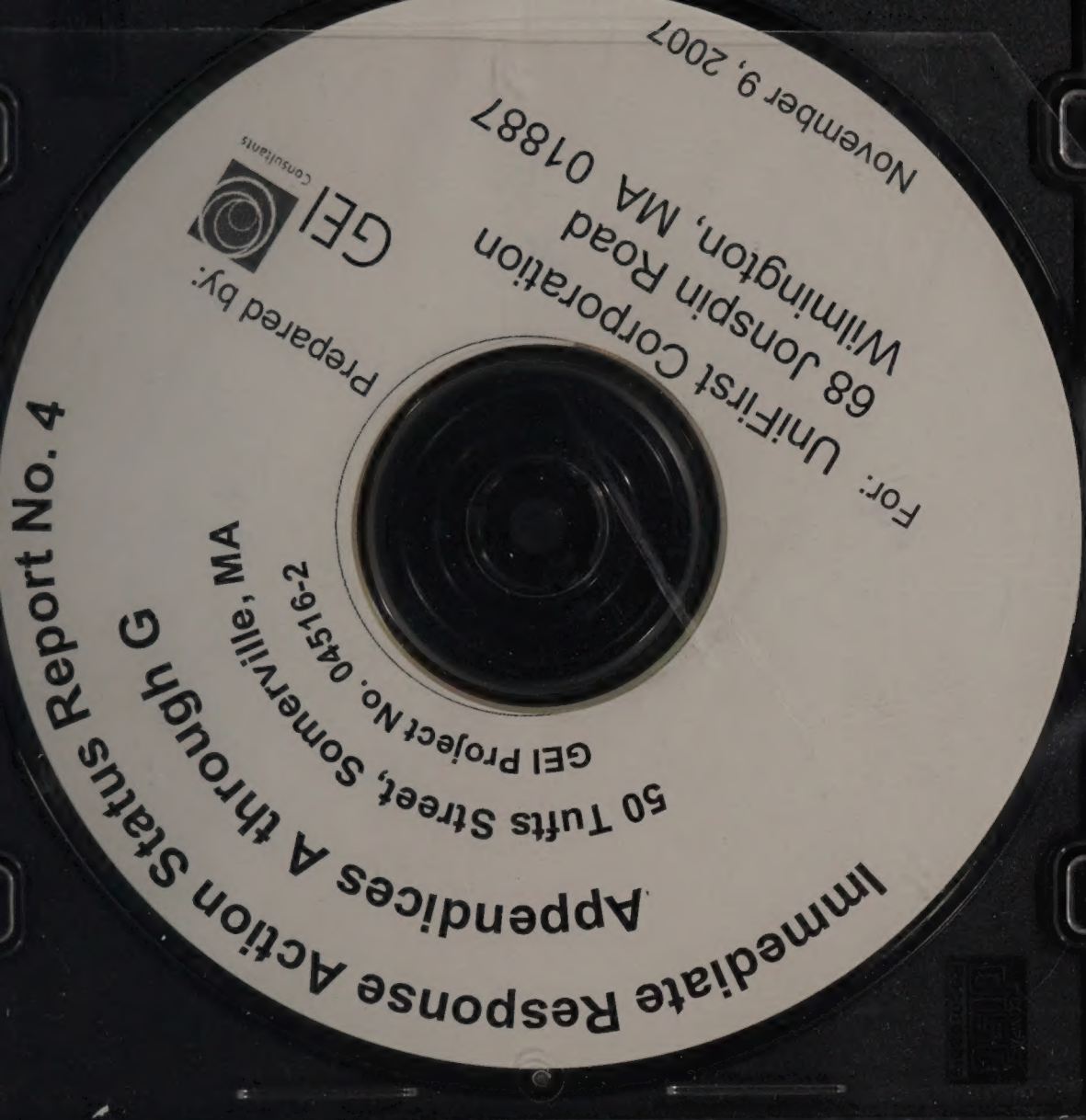
<b>Appendix A.</b>	<b>IRA Transmittal Form (BWSC105)</b>
<b>Appendix B.</b>	<b>Public Involvement</b>
<b>Appendix C.</b>	<b>Capuano Center - Indoor/Outdoor Air Laboratory Data Reports and Summa Canister Certifications</b>
<b>Appendix D.</b>	<b>Capuano Center - Indoor Air Sampling Checklists and Photo Logs</b>
<b>Appendix E.</b>	<b>Residences – Soil Vapor Laboratory Data Reports</b>
<b>Appendix F.</b>	<b>Residences - Sub-slab Pre-Sampling Checklists, Sub-slab Sampling Checklists, and Photo Logs</b>
<b>Appendix G.</b>	<b>Residences - Sub-slab Monitoring Point Installation Logs</b>
<b>Appendix H.</b>	<b>Residences - Indoor/Outdoor Air Laboratory Data Reports</b>
<b>Appendix I.</b>	<b>Residences - Indoor Air Pre-Sampling Checklists and Photo Logs</b>
<b>Appendix J.</b>	<b>Residences – SSDS Extraction Point Location Figures and Construction Information</b>
<b>Appendix K.</b>	<b>Hazardous Waste Manifests</b>
<b>Appendix L.</b>	<b>50 Tufts Street - Carbon Treatment Unit Influent/Effluent Laboratory Data Reports and Sample Checklists</b>
<b>Appendix M.</b>	<b>50 Tufts Street – Soil Vapor Laboratory Data Reports and Sample Checklists</b>
<b>Appendix N.</b>	<b>50 Tufts Street – Air Sampling Checklists and Photos</b>
<b>Appendix O.</b>	<b>50 Tufts Street – Indoor/Outdoor Air Laboratory Data Reports</b>
<b>Appendix P.</b>	<b>Boring Logs and Monitoring Well Installation Reports</b>

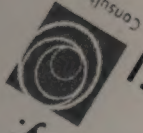


<b>Appendix Q.</b>	<b>Soil Sample Laboratory Data Reports</b>
<b>Appendix R.</b>	<b>Soil and Rock Core Physical Data</b>
<b>Appendix S.</b>	<b>Subsurface Investigation - Soil Vapor Laboratory Data Reports</b>
<b>Appendix T.</b>	<b>Subsurface Investigation - Soil Vapor Pre-Sampling Checklists</b>
<b>Appendix U.</b>	<b>Groundwater Sample Laboratory Data Reports</b>
<b>Appendix V.</b>	<b>Hydraulic Conductivity Test Calculation Sheets</b>

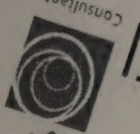






Immediate Response Action Status Report No. 4  
Appendices A through G  
50 Tufts Street, Somerville, MA  
GEI Project No. 04516-2  
Prepared by:  GEI Consultants  
For: UniFirst Corporation  
68 Jonspin Road  
Wilmington, MA 01887  
November 9, 2007



Immediate Response Action Status Report No. 4  
Appendices H through V  
50 Tufts Street, Somerville, MA  
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